FEASIBILITY STUDY WORK PLAN
TYSON WASH WQARF REGISTRY SITE
QUARTZSITE, ARIZONA
ADEQ TASK ASSIGNMENT 04-0048

Prepared for:

Arizona Department of Environmental Quality
Waste Programs Division
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MACTEC Project No. 4972-04-2100.5.1

March 30, 2006

MACTEC

engineering and constructing a better tomorrow

March 30, 2006

Mr. Chris Gamache
Project Manager
Superfund Programs Section
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, Arizona 85007

FILE COPY

Subject: **Feasibility Study Work Plan**
Tyson Wash WQARF Registry Site
ADEQ Task Assignment 04-0048
MACTEC Project No. 4972-04-2100.5.1

Dear Mr. Gamache:

MACTEC Engineering and Consulting, Inc. (MACTEC) is pleased to submit this *Feasibility Study Work Plan* (FS Work Plan) for the Tyson Wash WQARF Registry Site in Quartzsite, Arizona. This FS Work Plan incorporates changes and comments requested by the Arizona Department of Environmental Quality (ADEQ) letter dated February 21, 2006 and during a meeting between ADEQ and MACTEC on March 1, 2006. The scope of work proposed by this work plan is based on the Remedial Objectives (RO's) that were accepted for the site and the results of the on-going Early Response Action (ERA) that is being performed.

Sincerely,

MACTEC ENGINEERING AND CONSULTING, INC.

James N. Clarke, R.G
Principal Geologist

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Environmental Department Manager

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1.0 INTRODUCTION

This Feasibility Study (FS) Work Plan presents the proposed scope of work to complete the FS for the Tyson Wash Water Quality Assurance Revolving Fund (WQARF) Registry Site (Site). This FS Work Plan has been prepared in accordance with the following guidance documents:

- Paragraph B of Arizona Administrative Code (A.A.C) R18-16-407(B) (March 29, 2002)
- *Guidance for Conducting Remedial Investigations/Feasibility Studies under CERCLA*, OSWER Directive 9355.3-01 dated October 1988.

1.1 PROJECT AUTHORIZATION

MACTEC Engineering and Consulting, Inc. (MACTEC) has been retained by the Arizona Department of Environmental Quality (ADEQ) to perform the following for the Site: a Remedial Investigation (RI); Human Health Risk Assessment (HHRA); Feasibility Study (FS); and, Early Response Action (ERA). This FS Work Plan has been prepared in accordance with the scope of work and terms and conditions of the Arizona Superfund Response Action Contract (ASRAC) No. EV03-0073AO between MACTEC and ADEQ, and the ADEQ Task Assignment No. 04-0048.

1.2 WORK PLAN RATIONALE

The rationale of the FS Work Plan is to develop the scope of work and procedures to perform the FS and prepare and submit the FS Report.

The FS will be performed in accordance with A.A.C R18-16-407. The objectives of the FS are provided as follows:

- Assist ADEQ with community involvement activities described in the Community Involvement Plan for the Site.
- In coordination with ADEQ, select a remedial strategy or combination of remedial strategies from the following: no action, monitoring, source control, controlled migration, physical containment, or plume remediation.
- Develop a reference remedy consisting of a combination of a remedial strategy (or strategies) and remedial measures.

- Develop alternative remedies consisting of a combination of a remedial strategy or strategies and remedial measures that will be compared to the reference remedy. According to R18-16-407 (E)(3), at least one of the alternative remedies must employ a remedial strategy or combination of strategies that is more aggressive than the reference remedy, and at least one of the alternative remedies must employ a remedial strategy or combination of strategies that is less aggressive than the reference remedy.

- Conduct a detailed review and evaluation of remedial measures using the best available scientific information concerning available remedial methods and technologies and the comparison criteria identified in Arizona Revised Statutes (A.R.S) §49-282.06 (C).

- Ensure that the referenced remedy and the alternative remedies are capable of meeting the remedial objectives developed during the RI.

- Ensure that the proposed remedy is consistent with criteria set forth in A.R.S §49-282.06 (A) and A.R.S §49-282.06 (F).

In February 2003, a pilot-scale groundwater pump-and-treat system was installed as an Early Response Action (ERA) to evaluate pump-and-treat as a combination source control/controlled migration strategy. At the same time, a bench-scale treatability study was also performed to evaluate in-situ bioremediation to enhance source control/controlled migration over the conventional pump-and-treat approach. Monitoring of the pilot-scale system indicated the pilot-scale system was possibly performing some source control; however, the system was not effectively meeting the controlled migration objective. MACTEC subsequently modeled an expanded pump-and-treat system that involved different placements of additional extraction and injection wells. The modeling results indicated a combination of five extraction wells and a single injection well upgradient of the identified source area should be effective in meeting the controlled migration objective. Therefore, ADEQ authorized expansion of the system in July 2005. The expanded system was installed from September 26, 2005 through October 7, 2005 and was started on October 20, 2005. A groundwater model was run to evaluate system operation. An image of the resulting model is included as Appendix A.

2.0 BACKGROUND

This section provides the background of the Site and the basis for the FS activities proposed in this work plan.

2.1 SITE DESCRIPTION AND HISTORY

The Site is located northwest of the intersection of State Highway 95 and Business Route Interstate 10 in the Town of Quartzsite, La Paz County, Arizona. Quartzsite is located 125 miles west of Phoenix along U.S. Interstate 10, approximately 18 miles east of the Colorado River. The study area is located in the southeast quarter of Section 21, and the northeast quarter of Section 28, Township 4 North, Range 19 West, as shown on the Quartzsite, Arizona U.S. Geological Survey 7.5 minute Topographic Map (Figure 1). The WQARF study area includes several properties that contain both private residences and commercial businesses. The locations of properties, private wells, and monitoring wells within the Site are shown on Figures 3 and 4.

Investigation of the groundwater volatile organic compound (VOC) plume at the Tyson Wash WQARF Site was initiated by the Arizona Department of Environmental Quality (ADEQ) in August 1995. On June 30, 2003, MACTEC submitted the Final Remedial Investigation (RI) Report for the Tyson Wash WQARF Site. The RI focused on three properties shown on Figure 2: The Welcome RV Park; the former Hi-Ali Motel; and, the Cast (formerly Braswell) property. The greatest PCE concentration detected at the Site, which was 200 micrograms per liter (µg/l), was reported in the domestic well at the Welcome RV Park in 1995.

The VOC plume contains tetrachloroethene (PCE) and trichloroethene (TCE) at concentrations above the ADEQ Aquifer Water Quality Standard (AWQS) of 5 µg/L. The VOC plume has affected the upper aquifer, located approximately 40-70 feet below ground surface. There are no indications of the existence of non-aqueous phase liquids in soils or groundwater at the Site. VOC concentrations exceeding ADEQ Soil Remediation Levels have not been reported in any soil samples collected during the investigation. Historically, the shallow aquifer has been a source of drinking water for the area. In September 2001, the Town of Quartzsite completed the installation of its municipal water supply, thus providing residents of the area with an alternate source of drinking water.

MACTEC began quarterly groundwater monitoring in November 1999. Depth to groundwater measurements were collected from dedicated dataloggers installed in each of the monitoring wells from May 2000 through November 2002. Manual measurements have been collected from the wells since December 2002. Monitoring results through the third quarter 2001 indicated a relatively consistent groundwater flow direction to the northeast. During the fourth quarter 2001, the groundwater flow direction began to change toward the north-northwest, a possible result of the shutting down of the three shallow domestic well in the area. Tables 1 and 2 provide well construction and groundwater elevation data through December 2005 and Tables 3 and 4 provide groundwater analytical data through December 2005. Figure 2 is a groundwater elevation hydrograph for the Site monitoring wells, Figure 3 shows the 4th Quarter 2005 groundwater elevations, and Figure 4 shows the 4th Quarter 2005 PCE distribution.

In February 2003, MACTEC, under authorization of ADEQ, implemented an ERA at the site. The ERA originally consisted of the installation of two groundwater extraction wells, identified as EW-1 and EW-2, and an injection well, identified as INJ-1 on the Welcome RV Park property. Groundwater extracted from EW-1 and EW-2 was pumped through a granular activated carbon (GAC) filter and re-injected to the aquifer at INJ-1. The system was operated on a cycle of three hours on and three hours off to avoid creation of a steep groundwater gradient. This pilot-scale system was intended to demonstrate 1) that groundwater pump-and-treat could reduce PCE concentrations in the Welcome RV Park well; and; 2) control migration of the PCE plume to Town of Quartzsite production wells located approximately 0.5 miles downgradient of the Site. The system was started on April 7, 2003 and between April 7, 2003 and September 20, 2005, an estimated 2,909,487.3 gallons of groundwater had been pumped, treated in the GAC filter, and re-injected into the shallow aquifer through well INJ-1.

From February 2003 (baseline sampling event) to February 2005, the PCE concentrations in samples collected from the Welcome RV Park well decreased sharply from 160 µg/L to 30 µg/L, which indicated that the system was meeting the objective of decreased PCE concentrations in the Welcome RV Park well. However, PCE concentrations in QMW-1 and QMW-3 began steadily increasing. Based on the trends, it was concluded that the pilot-scale system had actually driven the PCE plume toward the south toward QMW-1 and then northwest to QMW-3. Therefore, the objective of controlled migration was not being met. Based on this, MACTEC modeled an expanded system configuration consisting of three new extraction wells, identified as EW-3

through EW-5, and a new injection well, identified as INJ-2. The locations of theses wells are shown on Figure 4 and the modeling results are attached as Appendix A.

The expanded system was installed from September 26, 2005 through October 5, 2005 and testing and adjustments were performed on October 11-12, 2005 and on October 18-20, 2005. Testing indicated that INJ-2 could not accept more than approximately 7 gpm of water. Therefore, the system was set on October 20, 2005 at a total pumping rate of 8 gpm on a cycle of 1 hour on and two hours off with 7 gpm of treated water injected at INJ-2 and 1 gpm of treated water injected at INJ-1. Between April 7, 2003 and December 6, 2005, approximately 3,076,418 gallons of water had been pumped and treated and approximately 0.55 pounds of PCE have been removed.

2.2 PREVIOUS INVESTIGATIONS

The results of previous investigations are discussed in detail in the *"Remedial Investigation Report, Tyson Wash WQARF Site, Quartzsite, Arizona"* prepared by MACTEC for ADEQ and dated June 30, 2003 (MACTEC 2003).

2.3 GEOLOGY AND HYDROGEOLOGY

At the Site, subsurface soils consist of two main units. From the ground surface to a depth ranging from 60 to 70 feet bgs, soils consist of interbedded layers of well-cemented gravel, sand, silt, and clay. The upper 20 to 25 feet of this unit generally contain silty sand and silty gravel. A highly calichified lens occurs at a depth ranging from 8 to 12 feet bgs. The remainder of the upper unit consists of interbedded layers of silty clay and silty sand.

Below a depth ranging from 60 to 70 feet across the Site, soils consist of silty clay to clay, with the estimated clay percentage ranging from 50 percent (%) to nearly 100%. This clay-rich unit appears to act as an aquitard, inhibiting the vertical flow of groundwater from the shallow aquifer to the deep aquifer. Groundwater flow in the upper aquifer is primarily horizontal through the coarser grained soils above the clay layer.

The shallow aquifer is believed to be perched and is estimated to extend at least 5 miles north of the Town of Quartzsite. A thick, extensive clay/limestone layer separates the shallow aquifer from

a deeper confined aquifer. The deep aquifer consists of semi-consolidated sand, gravel, and clay that are typically encountered between 400 and 500 feet bgs. To date, there is no indication that the deep aquifer has been impacted with VOCs.

Depth to groundwater at the Site ranges from approximately 41 to 55 feet bgs. Groundwater flow across the Site was generally toward the east-northeast between May 2000 and September 2001. During that time period, the groundwater flow appeared to be strongly influenced by the pumping of domestic wells in the area.

The influence of the domestic wells also is indicated by the seasonal changes in the groundwater table elevation. Between May and September 2000 the groundwater table, as measured in monitoring wells QMW-1 through QMW-9 at the Site, generally increased or was relatively stable. Beginning in mid-October, and corresponding to the increased winter population, the groundwater table elevation decreased through March 2001, with the greatest change being noted in monitoring wells QMW-9 and QMW-2 on the Cast property. During April 2001, the water table decline ceased and elevations either stabilized or began to rise. This response corresponded to a decrease in water usage as the Town's population quickly declined near the end of March and early April. With the exception of the furthest up gradient wells (QMW-6 and QMW-7), the groundwater table elevation has increased steadily since the end of the Spring 2001 season, which coincides with the shutting down of a majority of the shallow domestic wells in the area. Depth-to-groundwater measurements collected since the Third Quarter 2001 also indicate a slight change in the groundwater flow direction toward to the north and northwest.

2.4 REMEDIAL OBJECTIVES SUMMARY

The Remedial Objectives Report dated May 14, 2003 and prepared by ADEQ presents the remedial objectives (ROs) for the Site (ADEQ 2003). The ROs established will be used to develop the remedy for the site. The FS will evaluate specific remedial measures and strategies and will identify a reference remedy and at least two alternative remedies capable of meeting the ROs. The FS will also identify the proposed remedy and describe how it will meet the ROs. This subsection summarizes the ROs for the Site.

The ROs are based on the current and reasonably foreseeable uses of land and the current and reasonably foreseeable beneficial uses waters of the state identified in the Tyson Wash Use Report, dated September 13, 2002. ROs were not established for every use identified in the Use Report. The determination as to whether a use was addressed was based on information gathered during the public involvement process, limitations of WQARF, and whether the use is reasonably foreseeable.

A public meeting was held on October 17, 2001 to discuss the Use Report and the proposed ROs. The Use Report was subsequently slightly modified. As a result, ADEQ conducted another meeting on October 29, 2002 to discuss the proposed ROs. Comments on the Draft RO Report were accepted through November 29, 2002. After consideration by ADEQ, the final RO Report was prepared and dated May 14, 2003 (ADEQ, 2003).

2.4.1 Remedial Objectives for Land Use

The Site includes approximately 12 acres of low density residential and commercial properties. Land use within the Site includes residences, a mobile home park, a restaurant, and a former hotel. Future land use within the general Site area is expected to remain similar, but increase in density. The Quartzsite General Plan proposes a commercial development node at the intersection of Business Loop I-10 and Highway 95, just outside the southeast boundary of the Site.

RO's for land use are established for those properties known to be contaminated with a hazardous substance. However, laboratory analyses of soil samples and soil gas samples have not definitively identified areas of soil contamination within the Site. VOCs in the soil may have been present at one time, but now have appeared to have volatilized, degraded, or dispersed into the groundwater or environment after they were released.

No ROs for land use are currently proposed since no evidence of soil contamination is present above soil remediation levels at the areas investigated.

2.4.2 Remedial Objectives for Groundwater Use

The groundwater beneath the Site is present in an upper aquifer which exists from 40 to 70 feet below ground surface (bgs) and a lower aquifer which begins at approximately 300 feet bgs. The PCE and TCE groundwater plume appears to have only affected the upper aquifer. The plume

extends to approximately 300 feet to the north of Cowell Street, 400 feet east of Washington Boulevard, 300 feet south of Cowell Street, and 200 feet east of Oregon Avenue.

The Site includes nineteen privately owned wells of which only one well (B-3) is constructed in the deep aquifer (Figure 4). No municipal or large supply wells are located on or near the Site. According to Arizona Department of Water Resources (ADWR) records, there are approximately 544 registered private wells within approximately a one-half mile radius of the Site. Approximately 111 of the 544 registered wells are deep aquifer wells.

Nine of the nineteen wells have been impacted by PCE contamination (see Table 2). Seven of the nine wells have historically had PCE concentrations above the AWQS of 5 µg/L (see Table 2). Three of the nineteen wells have been impacted by TCE contamination, of which one well has had historical TCE contamination above the AWQS of 5 µg/L. The property zoning for each of the above wells is as follows:

Well Name[1]	Property Zoning	PCE > AWQS
Adams north	R	No
Adams south	R	No
Rhoades west	R	Yes
Rhoades east	R	inoperable
Parsons north	R	No
Parsons south	R	No
Kauffman	R/V	Yes
York	R	No
Welcome RV Park	SR/C	Yes *
La Casa west	SC	Yes
La Casa east	SC	No
Cast B-1	R/C	Yes
Cast B-2	R/C	Yes
Cast B-3	R/C	No
Cast B-4	R/C	No

Well Name[1]	Property Zoning	PCE > AWQS
Post Office	C	Yes
Eric's RV Repair	SC	No
Mark's Family Restaurant	C	No
La Mirage RV Park	C	No

[1] All properties listed are currently connected to the Town of Quartzsite water and sewer system

R – Residential , SR - Seasonal residential, SC - Seasonal Commercial, V – Vacant,
C – Commercial, * Also contains TCE groundwater contamination > AWQS

ADEQ conducted a water use survey regarding the Site. A questionnaire was given to thirty-five residents within the community involvement area (CIA). As agreed in the questionnaire, ADEQ is keeping the names and addresses of the residents who responded anonymous. Eighteen persons responded to the survey and submitted a written questionnaire for evaluation.

The results of the survey suggest that most residents within the CIA indicated they would continue to use their private wells for non-potable use. Four of the respondents indicated they would also continue using their wells for drinking water purposes. One respondent did not answer the future use question. One respondent indicated they were not sure if they would continue using their well in the future. One respondent stated that they used their well for domestic purposes and indicated they would discontinue use if connected to the Town of Quartzsite water supply. One other respondent indicated they would continue to use their deep aquifer well for potable purposes.

All of the commercial and residential properties located within the Site are connected to both Town of Quartzsite water and sewer. The Wellhead Protection Plan (WPP), as accepted and approved by the Town of Quartzsite on September 14, 1999, outlined several management strategies for the Wellhead Protection Area (WPA). The WPP suggested that the Town require all property owners to disconnect shallow wells from drinking water connections once they have been connected to the Town's water system. The shallow wells could still be used for irrigation. The WPP also suggested a requirement that properties that desire to keep their privately owned wells install backflow prevention on their plumbing. The above two management strategies, if implemented, would deter private well owners from using their shallow wells as a drinking water source. In addition, A.A.C. R18-4-115 specifies that a public water system shall protect from contamination

caused by backflow through unprotected cross-connections by requiring the installation and periodic testing of backflow-prevention assemblies. Therefore, in addition to the above mentioned management strategy, the State of Arizona also has rules to prevent contamination of a public drinking water system.

The following factors were taken into consideration when developing the ROs for the site:

- The Town of Quartzsite requires that all property owners within 200 feet of the water and sewer lines connect to the utilities provided.

- Some residents will continue to use their private wells for potable purposes due to taste issues resulting from high total dissolved solids (TDS) in the deep aquifer. However, residents who choose to use their private wells for potable purposes are required to isolate the private well water from the public supply distribution system.

- Elevated concentrations of TDS and nitrates occur in the shallow aquifer. Nitrate concentrations exceeding the Water Quality Standard of 10 milligrams per liter (mg/l) have been reported in groundwater samples collected from site monitoring wells. Nitrate concentrations range between 5 and 29 mg/l in groundwater beneath the site.

- As residents connect to the Town water system and discontinue use of their private wells, the plume geometry may change. Current groundwater analytical results indicate that the plume may be spreading toward Tyson Wash following the assumed natural direction of groundwater flow.

- All groundwater wells constructed within the deep aquifer may be possible conduits for cross-contamination between the two aquifers. Costs to evaluate deep wells as potential conduits are excessive and may exceed the cost required to cleanup the groundwater at the site.

- According to the WPP, installation of new wells in the shallow aquifer will be prohibited in the WPA.

- The WPA available at the time the RO Report was written does not include the Site. However, in the future additional areas just to the south of the Site may be established, as well as the entire community being declared a WPA.

- Shallow aquifer groundwater uses outside the boundaries of Site are assumed to be for potable use. This assumption is made because potential use of the shallow aquifer cannot be determined without extensive outreach to each and every individual with a shallow groundwater well.

- ADEQ has not confirmed the connection status of other residents outside of the plume boundaries. Therefore, it is assumed for the purposes of developing the ROs that residents outside of the plume boundaries are continuing to use their domestic wells for potable purposes.

- After residents are connected to the Town of Quartzsite public water supply, it is assumed that the private domestic wells will be unnecessary for potable purposes. The WPP indicates that the management strategies suggested would deter people from using their private wells for potable purposes. According to the WPP, backflow prevention equipment must be installed on any private wells that the property owner wishes to use after service connection. In addition, the water service from the house must be connected to the Town water source.

The Town of Quartzsite requires all property owners within 200 feet of the water and sewer service to connect to the utilities provided. In the future it is anticipated that all residents within the Town of Quartzsite will be connected to the public drinking water system.

PCE and TCE groundwater contamination from the shallow aquifer at the Site may continue to spread and impact the shallow aquifer outside of the current plume boundaries. According to the ADWR database, there are over 400 shallow aquifer wells within a one-half mile radius of the site.

The assumed current use of the shallow aquifer outside of the Site plume boundaries is for potable purposes for those residents not connected to the Town water supply. After residents outside of the Site plume boundaries have connected to the Town water supply, the future use of the shallow aquifer will be for non-potable purposes only. The proposed RO for potable and non-potable groundwater use of the shallow aquifer outside the plume boundaries is:

> To protect, restore, replace, or otherwise provide a water supply for potable use by private well owners outside the current plume boundaries of the Site if the current use is impaired or lost due to contamination from the Site. This RO is applicable until Town water service connections can be confirmed. After the Town water connections are confirmed, the RO is to protect, restore, replace, or otherwise provide a water supply for non-potable use by private well owners outside the current plume boundaries of the Site if the current use is impaired or lost due to contamination from the Site. This RO is needed for as long as the wells are used for non-potable purposes and their use is threatened, impaired, or lost as a result of contamination from the Site.

3.0 FEASIBILITY STUDY TASKS

This section describes the tasks that compose the FS for the Site.

3.1 PROJECT PLANNING AND SUPPORT

The project planning and support tasks include communications with ADEQ, meetings, and budget tracking. During performance of the FS, MACTEC will meet with ADEQ as necessary. It is anticipated that a majority of the contact will be by telephone or e-mail.

3.2 COMMUNITY INVOLVEMENT ACTIVITIES

MACTEC understands that a Community Involvement Plan (CIP) has been prepared for the Site and the Community Involvement Area (CIA) has been established. The Community Advisory Board (CAB) has been established and meets on a regular basis. The Community Involvement Activities will be performed as requested in accordance with the CIP and A.A.C R18-16-404.

3.3 EARLY RESPONSE ACTION ACTIVITIES

The current groundwater pump-and-treat system was implemented as an ERA at the Site in 2003 and expanded in October 2005. Groundwater monitoring to evaluate the performance of the system is performed on a quarterly basis and system operation and maintenance (O&M) is performed on a monthly basis. Results of system monitoring and O&M activities are reported quarterly in groundwater monitoring reports.

3.4 FEASIBILITY STUDY

3.4.1 Framework of Feasibility Study

For the purposes of this FS Work Plan, the final remedy for the site will address only groundwater. In accordance with the scope of work, the following three documents will be prepared:

- Remedial Alternatives Screening Technical Memorandum.

- Remedial Alternatives Evaluation Report.
- Feasibility Study Report.

3.4.2 Remedial Alternatives Screening

As indicated in Section 2.4, the ROs have been finalized. Additionally, an ERA has been implemented. Therefore, the Remedial Alternatives Screening will be performed to document the selection process for the ERA, which will be converted to a full remedial action through the FS and Remedial Action Plan (RAP) process. As part of the ERA evaluation, MACTEC worked with ADEQ to identify remedial strategies and remedial measures, including innovative treatment technologies, which appeared capable of achieving the ROs. MACTEC identified and screened remedial alternatives in the following categories:

1. Plume remediation;
2. Physical containment;
3. Controlled migration;
4. Source control;
5. Monitoring; and,
6. No action alternative.

The RO's established for the Site require that the selected remedy meet Items 3 through 5 above and possibly Item 1. Remedies providing physical containment (Item 2), which would include the use of slurry walls, would also meet the RO's. However, the cost and implementability for these types of remedial alternatives will be cost preventative compared to other remedial alternatives. Therefore, remedial alternatives providing physical containment will not be screened or evaluated. During the ERA evaluation, MACTEC and ADEQ evaluated three potential remedial alternatives for the Site; groundwater pump-and-treat, in-situ bioremediation, and monitored natural attenuation (MNA). Therefore, these remedial alternatives and possibly additional remedial alternatives will be screened for effectiveness, implementability, cost, and ability to meet the RO's.

MACTEC completed an in-situ bioremediation treatability study in October 2003 that demonstrated in-situ bioremediation may be effective in remediating the groundwater impact at the

Site. Therefore, no additional work will be required to evaluate in-situ bioremediation as a remedial alternative. MACTEC has also been performing routine groundwater monitoring, during which events the parameters to evaluate MNA are collected. Parameters that are collected during groundwater monitoring events are; pH, conductivity, temperature, dissolved oxygen, and oxidation reduction potential. Prior to installation of the current MACTEC groundwater pump-and-treat system in September 2005, MACTEC performed groundwater modeling using the program MODFLOW to evaluate the possible effectiveness of the system. Quarterly groundwater monitoring that includes water level measurements and collection and analysis of groundwater samples is currently being performed to monitor operation of the system.

Following completion of the Remedial Alternatives Screening, MACTEC will prepare a Draft Remedial Alternatives Screening Technical Memorandum, which will summarize the findings of the screening. The Draft Remedial Alternatives Screening Technical Memorandum will include the following components:

- FS objectives.
- Proposal of a reference remedial alternative based on the following; information in the RI, the results of the current ERA, the best available scientific information concerning remedial technologies, and preliminary analysis of the comparison criteria and the ability of the reference remedy to comply with A.R.S §49-282.06. For the Site, groundwater pump-and-treat will be proposed as the reference remedy.
- Proposal of at least two alternative remedies. At least one of the alternative strategies must employ a remedial strategy or combination of strategies that is more aggressive than the reference remedy, and at least one of the alternative remedies must employ a remedial strategy or combination of strategies that is less aggressive than the reference remedy. For the Site, MNA will be proposed as a less aggressive remedial alternative and in-situ bioremediation will be proposed as a more aggressive remedial alternative. Other possible remedial alternatives capable of achieving the RO's may also be proposed.
- Recommendation of the remedial alternatives that will be carried forward to the Remedial Alternatives Evaluation phase.

Two copies of the Draft Remedial Alternatives Screening Technical Memorandum will be submitted to ADEQ for review and comment. Following receipt of ADEQ's comments, MACTEC will submit to ADEQ three copies of the Final Remedial Alternatives Screening Technical Memorandum, incorporating ADEQ's comments.

3.4.3 Remedial Alternatives Evaluation

After the Remedial Alternatives Screening Technical Memorandum proposing the reference remedial alternative and at least two alternative remedies has been approved by ADEQ, MACTEC will conduct a detailed comparative evaluation of the reference remedy and alternative remedies selected. The objective for completion of the Remedial Alternatives Evaluation (RAE) is to maximize protection of human health and groundwater resources while meeting the Remedial objectives and minimizing overall cost of remediation. The evaluation will be based on the seven criteria identified in ARS §49-282.06 (C) as summarized below:

- Population, environmental and welfare concerns at risk;
- Routes of exposure;
- Amount, concentration, hazardous properties, environmental fate, and form of substance present;
- Physical factors affecting human and environmental exposure and extent of previous expected migration;
- Beneficial use of water;
- Technical practicality and cost effectiveness; and,
- Availability of other appropriate remedial action appropriate remedial action and enforcement mechanisms.

In accordance with A.A.C R18-16-407 (H) (2), the remedial alternative will also be evaluated using the following:

1. A demonstration that the remedial alternative will achieve the remedial objectives.
2. An evaluation of consistency with the water management plans of affected water providers and the general land use plans of local governments with land use jurisdiction.
3. An evaluation of comparison criteria, including:
    - Practicality of the alternative, including its feasibility, short and long term effectiveness, and reliability;
    - Risk, including fate and transport of contaminants, assessment of current land and resource use, exposure pathways and duration of exposure, protection of health and

biota during implementation of remedial action, and residual risk in aquifer at end of remediation;

- Cost of remedial alternative, including capital, operating, maintenance, life cycle, and transactional costs;
- Benefit of value of remediation, including lowered risk, reduction in concentration or volume, decreased liability, acceptance by public, aesthetics, enhancement of future uses, and improvement to local economics; and,
- Discussion of comparison criteria in relation to each other.

The proposed remedy must meet the requirements provided in A.R.S §49-282.06 (A) as listed below:

- Assure the protection of public health and welfare and the environment;
- To the extent practicable, provide for the control, management, or cleanup of the hazardous substances so as to allow for the maximum beneficial use of the waters of the state; and,
- Be reasonable, necessary, cost effective, and technically feasible.

Additionally, in accordance with A.A.C. R18-16-407 (G), ADEQ and MACTEC will consult with the Town of Quartzsite on water management plans; the WPA; and, the WPP in case these have been updated since the release of the RO Report in 2003.

MACTEC will prepare a Remedial Alternatives Evaluation Technical Memorandum providing the results of the remedial alternatives evaluation. Two draft copies of the Remedial Alternatives Evaluation Technical Memorandum will be submitted to ADEQ for review and comment. Following receipt of ADEQ's comments, MACTEC will submit three copies of the Final Remedial Alternatives Evaluation Technical Memorandum incorporating ADEQ's changes and comments.

3.4.4 Feasibility Study Report

The FS Report will be prepared in compliance with R18-16-407 (I). The FS Report will describe the reasons for selection of the proposed remedy, including the following:

- How the proposed remedy will achieve the remedial objectives;
- How the comparison criteria were considered; and,
- How the proposed remedy meets the requirements of A.R.S §49-282.06

The FS Report will include the following components:

- Site background;
- Remedial objectives (attachment);
- Feasibility study objectives;
- Remedial strategies considered;
- Description of remedial alternatives considered (including remedial measures considered for each alternative);
- Description of remedial measures carried forward from Remedial Alternatives Screening Phase to Remedial Alternatives Evaluation Phase;
- Identification and results of treatability studies conducted (if applicable);
- Detailed evaluation of remedial alternatives (individual and comparative); and,
- Summary and conclusions (including recommended final remedy).

MACTEC will submit two copies of the FS Report to ADEQ for review and comments. Upon receipt of comments from ADEQ, MACTEC will incorporate ADEQ's comments into the Final FS Report. MACTEC will submit five copies of the Final FS Report to ADEQ.

4.0 PROJECT MANAGEMENT

This section describes the management of the FS for the Site.

4.1 PROJECT TEAM

An Organizational Chart presenting the Project Team is provided as Figure 5.

4.2 COMMUNICATION BETWEEN ADEQ AND MACTEC

Mr. Chris Gamache is the current ADEQ Project Manager and Mr. James N. Clarke is the current MACTEC Project Manager. Project planning and support is discussed in detail in Section 3.1. Communications, in the form of periodic status meetings, will be conducted primarily between the ADEQ Project Manager and the MACTEC Project Manager. The periodic status meetings will be conducted primarily via e-mail or telephone. Periodic technical meetings may also be conducted to discuss the scope of work or results. During field activities, communications between ADEQ and MACTEC may occur at least once daily. In the event that the MACTEC Project Manager is unavailable, the alternate point of contact is Mr. Harry Hendler, MACTEC's Environmental Department Manager.

4.3 COORDINATION

MACTEC will be responsible for the following:

- Coordinating and scheduling field activities.
- Procuring subcontractors and equipment necessary to complete the scope of work. This includes analytical laboratories, drilling contractors, and land surveyors.
- Preparing site-specific Health and Safety Plans.
- Preparing and maintaining site-specific Field Sampling Plans and Quality Assurance Project Plans.
- Managing and overseeing subcontractors.

- Managing investigation derived waste.
- Data collection, management, verification, evaluation and interpretation.
- Preparing reports and work plans as requested by the Task Assignment.
- Assisting ADEQ with Community Involvement activities as requested. This includes preparation of flyers and door hangers announcing significant field work, assistance with public notices, attendance at CAB and public meetings, and preparation of meeting presentation materials.
- Providing Registered Professional Support.

MACTEC will report directly to the ADEQ Project Manager. Based on our understanding of the project, ADEQ will be responsible for the following:

- Obtaining and maintaining access to properties where monitoring wells exist or are planned and to properties or production wells where remedial investigation activities are planned. MACTEC will assist ADEQ with this responsibility as requested.
- Coordinating field and remedial activities with property owners and tenants. MACTEC will assist ADEQ with this responsibility as requested.
- Signing ADWR Notice of Intent (NOI) forms for new monitoring wells.
- Coordination and scheduling of Community Involvement activities, including public notices, CAB meetings, and public meetings. MACTEC will assist ADEQ with this responsibility as requested.
- Review and approval of work plans and change order proposals.
- Review of cleanup procedures.
- Review and approval of the use of certain equipment, personnel, materials, services, and/or procedures.
- Determining and approving hours and days of work.
- Review of safety plans and protocol for compliance with OSHA and other regulations as applicable. ADEQ will not approve safety plans and assumes no liability whatsoever for safety plans.
- Stopping work for safety concerns or violations of the contractor or any subcontractor, or environmentally unsafe activities or procedures.
- Review of decontamination procedures.

- Review of disposal sites and treatment technologies for waste generated from investigations and clean-ups. ADEQ will be responsible for signing hazardous waste manifests.

- Final interpretation of the work performed.

- Review and approval of all documents and reports, except the Health and Safety Plan as described above.

- Review and approval of all invoices submitted for payment

4.4 PROJECT REPORTING

The following reports and documents will be prepared and submitted during the FS phase of the project:

- Monthly status reports via e-mail providing quantity of water pumped and treated during the month.

- Quarterly Groundwater Monitoring Reports

- Remedial Alternatives Screening Technical Memorandum

- Remedial Alternatives Evaluation Technical Memorandum

- Feasibility Study Report

Two copies of each draft document will be submitted for ADEQ review and comment. Upon receipt, ADEQ's comments will be incorporated into the final documents. The final document will be submitted to ADEQ.

5.0 SCHEDULE

Implementation of the proposed scope of work is contingent upon ADEQ approval of this Work Plan. Upon ADEQ approval of this Work Plan, which will authorize Work Plan implementation, MACTEC will begin the FS activities presented in this Work Plan.

6.0 REFERENCES

Arizona Administrative Code R18-16-406, R18-16-407 and R18-16-408

Arizona Department of Environmental Quality (ADEQ), 2003. *"Remedial Objective Reports, Tyson Wash WQARF Site, Quartzsite, Arizona"* dated May 14, 2003

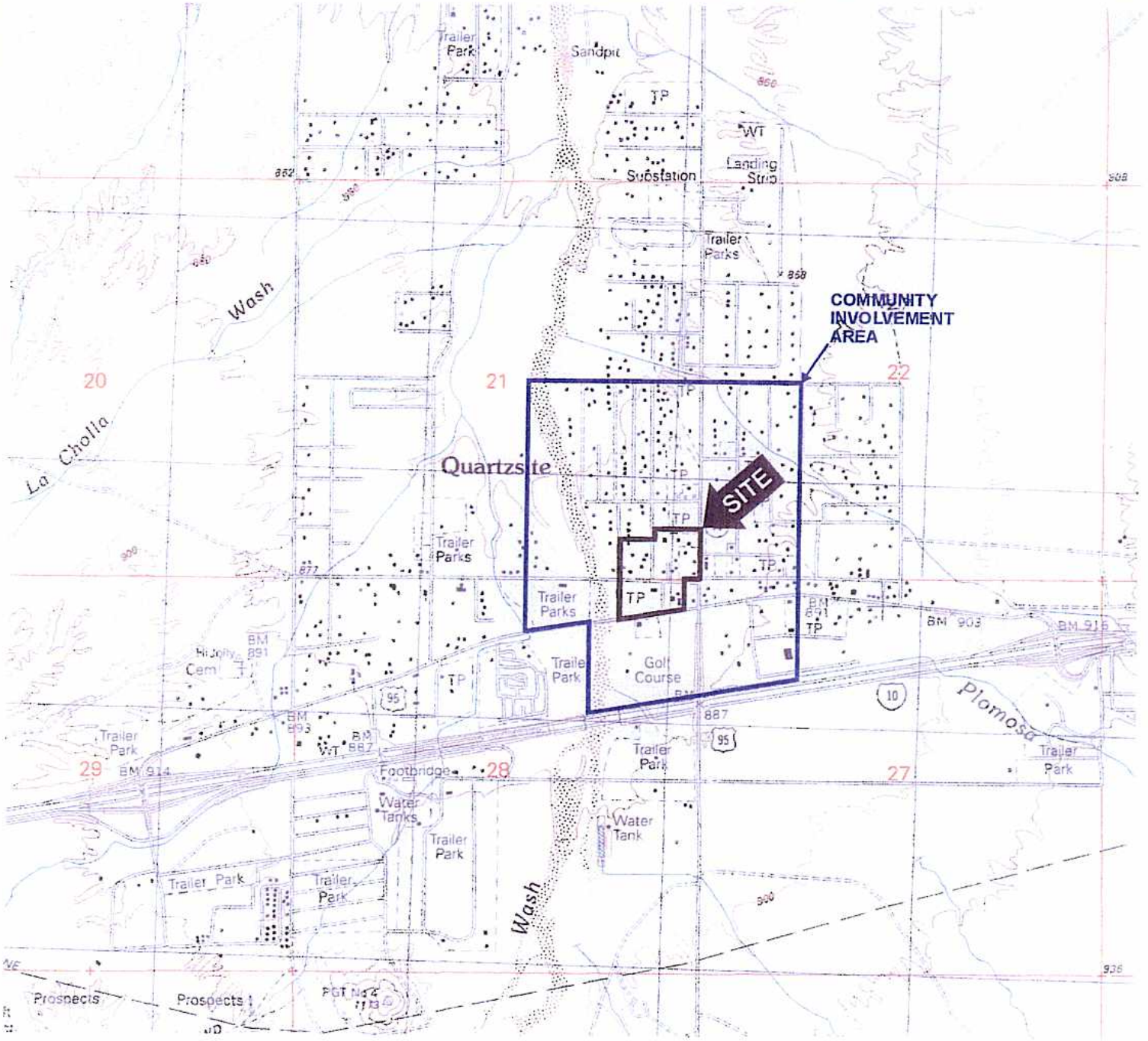
Arizona Revised Statutes §49-281 et. seq.

Environmental Protection Agency (EPA), 1988. *"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final"* dated October 1988.

MACTEC, 2003. *"Remedial Investigation Report, Tyson Wash WQARF Site, Quartzsite, Arizona"* prepared by MACTEC for ADEQ and dated June 30, 2003

FIGURES

N:data/wpdocs/saw/wqarf/tyson/corel/sitelocation



N

0 500' 1000' 2000'

SCALE IN FEET

NOTE:

MAP TAKEN FROM QUARTZSITE, ARIZONA
U.S. GEOLOGICAL SURVEY 7.5 MINUTE
TOPOGRAPHIC MAP.

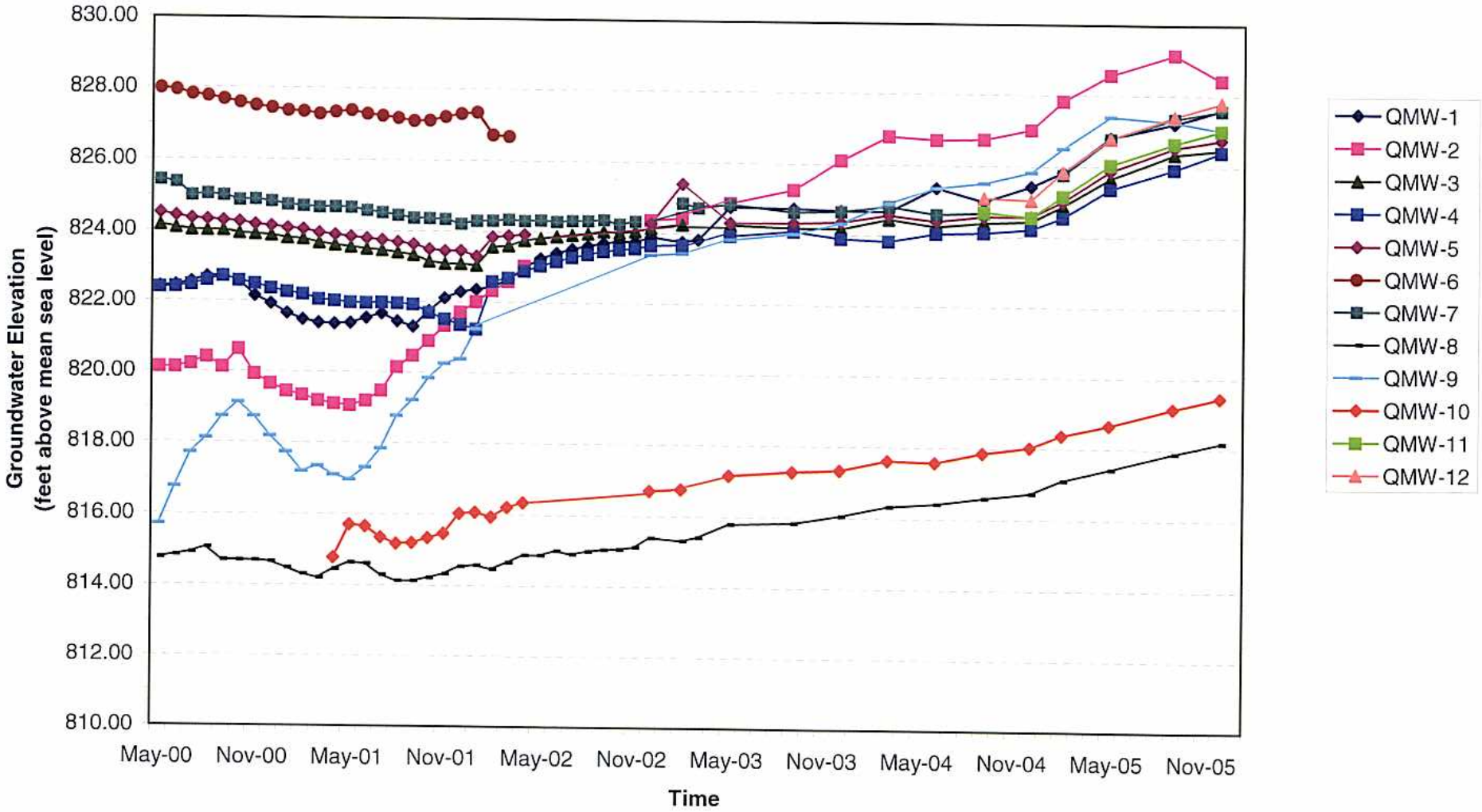
MACTEC

SITE LOCATION
ADEQ TYSON WASH WQARF SITE
QUARTZSITE, ARIZONA

FIGURE
1

DRAWN	PROJECT NUMBER	APPROVED	DATE
DANIEL L. KUDLICKI	661026	SAW	7/12/2001

Figure 2
Groundwater Elevation vs Time, May 2000 - December 2005
Tyson Wash WQARF Site



LA MIRAGE RV PARK

PRIVATE

YORK (RESIDENTIAL)

QMW-10 (819.47)

EW-5 (818.99)

QMW-8 (818.18)

LA CASA DEL RANCHO (RESIDENTIAL)

RHOADES / DAY (RESIDENTIAL)

ADAMS (RESIDENTIAL)

EW-4 (824.28)

QMW-4 (826.11)

B-1

QMW-9 (827.03)

B-3

EW-3 (825.32)

WELCOME RV PARK

TRAILER

TRAILER

CAMP & STORAGE INC

PARSONS (RESIDENTIAL)

QMW-3 (826.48)

CAST (FORMERLY BRASWELL) (RESIDENTIAL)

THE JERKY STORE

KAUFFMAN (RESIDENTIAL)

EW-2 (826.88)

EW-1 (827.16)

INJ-1 (827.02)

B-4

QMW-2 (828.43)

TRUCK GARAGE

LAUNDROMAT

B-2

NORTH OREGON AVE.

WASHINGTON AVE.

CENTRAL BLVD. (US-95)

QMW-7 (827.58)

QMW-5 (826.76)

QMW-1 (827.60)

OB-2

OB-1

OB-3

COWELL ST.

COWELL ST.

COWELL ST.

HA-2 (ABANDONED)

QMW-11 (827.02)

HA-1 (ABANDONED)

INJ-2 (829.79)

JOHNSON AVE.

ERIC'S RV REPAIR

POST OFFICE

SHELL STATION

QMW-12 (827.80)

HI – ALI MOTEL / LAUNDROMAT

MARK'S FAMILY RESTAURANT (BEAUTY SHOP)

QMW-6 (ABANDONED)

OB-4

OB-5

MAIN ST. (BUSINESS LOOP I-10)

820 821 822 823 824 825 826 827 828 829

EXPLANATION

QMW-2 MONITORING WELL

QMW-2 OBSERVATION WELL

B-4 DOMESTIC WELL

GROUNDWATER CONTOUR LINE
DASHED WHERE INFERRED

GROUNDWATER FLOW DIRECTION

EW-1 WATER TREATMENT EXTRACTION AND INJECTION WELLS

NOTE: LOCATION & NUMBER OF DOMESTIC WELLS ARE APPROXIMATE.

N

0' 50' 100'

SCALE IN FEET

MACTEC

3630 E. WIER AVE.; PHOENIX, ARIZONA 85040

DECEMBER 7, 2005
GROUNDWATER ELEVATIONS

SITE LOCATION:	ADEQ TYSON WASH WQARF SITE QUARTZSITE, ARIZONA			
DRAWN	PROJECT NO.	APPROVED	DATE	FIGURE
M. FREEMAN	4974-04-2100.5.1	JNC	2/8/06	3

LA MIRAGE RV PARK

PRIVATE

PRIVATE 4.2 ug/L

YORK (RESIDENTIAL)

EW-5 2.0 ug/L

QMW-8 11 ug/L

QMW-10 11 ug/L

LA CASA DEL RANCHO (RESIDENTIAL)

PRIVATE NS

RHOADES / DAY (RESIDENTIAL)

PRIVATE 1.1 ug/L

PRIVATE NS

PRIVATE 3.4/3.1 ug/L

ADAMS (RESIDENTIAL)

PRIVATE <1.0 ug/L

PRIVATE NS

EW-4 55 ug/L

QMW-4 96 ug/L

B-1 NS

QMW-9 1.5 ug/L

B-3 NS

TRAILER

TRAILER

EW-3 120/120 ug/L

WELCOME RV PARK

PRIVATE NS

PARSONS (RESIDENTIAL)

PRIVATE NS

QMW-3 200/200 ug/L

EW-2 16 ug/L

EW-1 <1.0 ug/L

INJ-1 2.0 ug/L

PRIVATE 12ug/L

KAUFFMAN (RESIDENTIAL)

PRIVATE <1.0 ug/L

B-4 NS

QMW-2 1.2 ug/L

CAST (FORMERLY BRASWELL) (RESIDENTIAL)

THE JERKY STORE

TRUCK GARAGE

LAUNDROMAT

B-2 NS

QMW-7 4.5ug/L

QMW-5 17ug/L

QMW-1 63 ug/L

OB-2

OB-1

OB-3

COWELL ST.

COWELL ST.

COWELL ST.

NORTH OREGON AVE.

WASHINGTON AVE.

CENTRAL BLVD. (US-95)

HA-2 (ABANDONED)

HA-1 (ABANDONED)

QMW-11 18 ug/L

INJ-2 1.7 ug/L

PRIVATE

ERIC'S RV REPAIR

PRIVATE NS

POST OFFICE

SHELL STATION

PRIVATE

QMW-12 3.8 ug/L

HI – ALI MOTEL / LAUNDROMAT

MARK'S FAMILY RESTAURANT (BEAUTY SHOP)

QMW-6 (ABANDONED)

OB-4

OB-5

JOHNSON AVE.

MAIN ST. (BUSINESS LOOP I-10)

5

50

100

EXPLANATION

QMW-2 MONITORING WELL

QMW-2 OBSERVATION WELL

B-4 DOMESTIC WELL

EW-1 WATER TREATMENT EXTRACTION AND INJECTION WELLS

APPROX. PCE ISOCONCENTRATION LINE DASHED WHERE INFERRED

NOTE: LOCATION & NUMBER OF DOMESTIC WELLS ARE APPROXIMATE.

PCE CONCENTRATIONS SHOWN IN MICROGRAMS PER LITER (ug/L)

N

0' 50' 100'

SCALE IN FEET

MACTEC

3630 E. WIER AVE.; PHOENIX, ARIZONA 85040

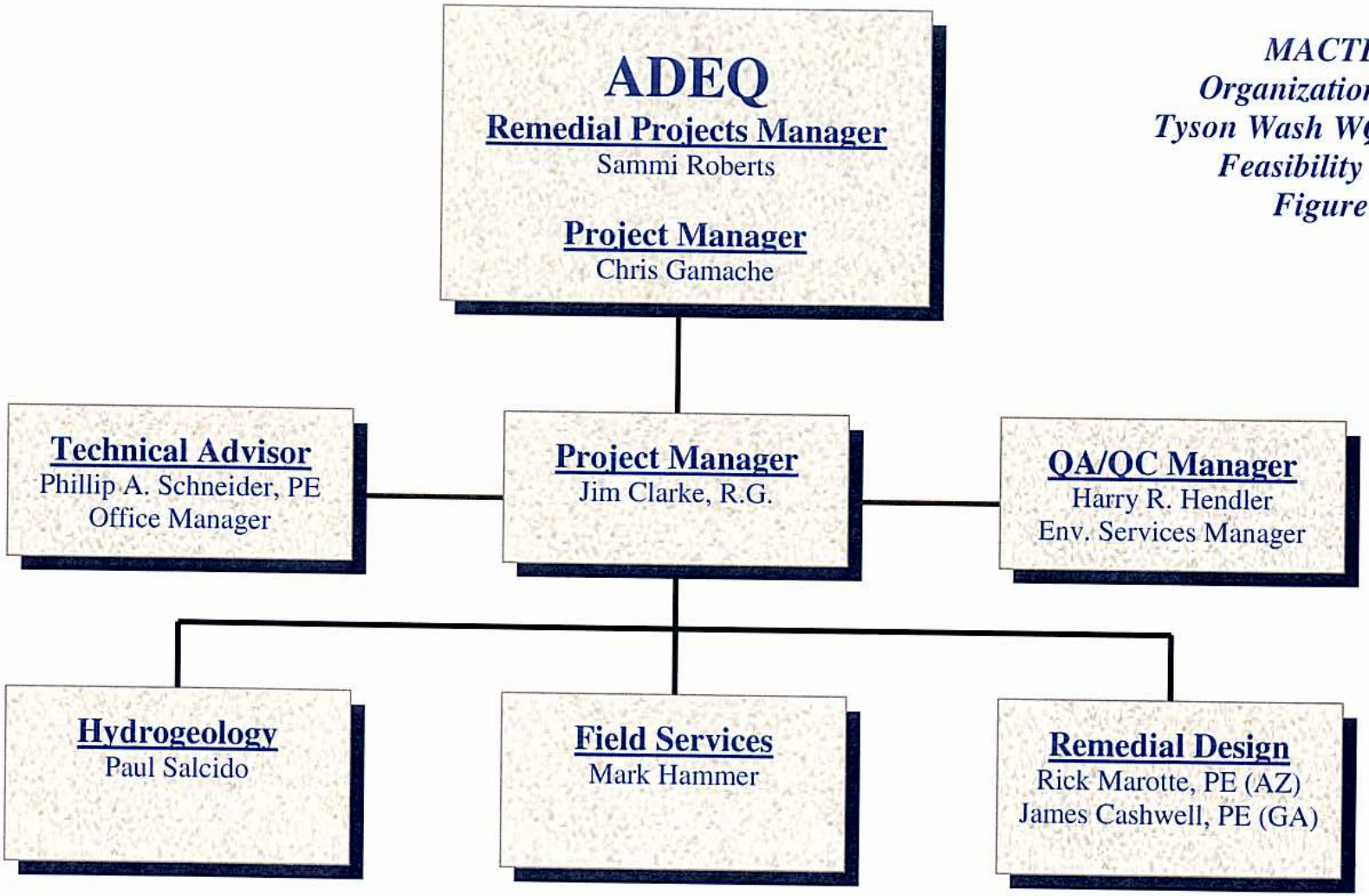
PCE CONCENTRATIONS
4TH QUARTER 2005

SITE LOCATION: ADEQ TYSON WASH WQARF SITE QUARTZSITE, ARIZONA

DRAWN	PROJECT NO.	APPROVED	DATE	FIGURE
M. FREEMAN	4972-04-2100.5.1	JNC	2/28/06	4

CADD File: Q:\FACE\Drawings\Environmental\40000-49999\42100\42100-4.dwg

MACTEC
Organization Chart
Tyson Wash WQARF Site
Feasibility Study
Figure 5



TABLES

Table 1. Results of Depth to Groundwater Measurements, May 2000 - December 2005
Tyson Wash WQARF Site, Quartzsite, Arizona

WELL ID (ADWR Registration Number)	Date Measured	Well Screened Interval (ft)	Depth To Groundwater (ft below Measuring Pt)	Measuring Point Elevation (ft above MSL)	Groundwater Table Elevation (ft above MSL)
QMW-1 (55-561847)	05/11/00	30-80	45.79	868.28	822.49
	06/11/00	30-80	45.84	868.28	822.44
	07/11/00	30-80	45.74	868.28	822.54
	08/11/00	30-80	45.60	868.28	822.68
	09/11/00	30-80	45.58	868.28	822.70
	10/11/00	30-80	45.73	868.28	822.55
	11/11/00	30-80	46.14	868.28	822.14
	12/11/00	30-80	46.36	868.28	821.92
	01/11/01	30-80	46.63	868.28	821.65
	02/11/01	30-80	46.80	868.28	821.48
	03/11/01	30-80	46.89	868.28	821.39
	04/11/01	30-80	46.91	868.28	821.37
	05/11/01	30-80	46.89	868.28	821.39
	06/11/01	30-80	46.75	868.28	821.53
	07/11/01	30-80	46.62	868.28	821.66
	08/11/01	30-80	46.84	868.28	821.44
	09/11/01	30-80	46.97	868.28	821.31
	10/11/01	30-80	46.54	868.28	821.74
	11/11/01	30-80	46.17	868.28	822.11
	12/11/01	30-80	45.99	868.28	822.29
	01/11/02	30-80	45.92	868.28	822.36
	02/11/02	30-80	45.85	868.28	822.43
	03/11/02	30-80	45.63	868.28	822.65
	04/11/02	30-80	45.29	868.28	822.99
	05/11/02	30-80	45.03	868.28	823.25
	06/11/02	30-80	44.87	868.28	823.41
	07/11/02	30-80	44.75	868.28	823.53
	08/11/02	30-80	44.66	868.28	823.62
	09/11/02	30-80	44.58	868.28	823.70
	10/11/02	30-80	44.52	868.28	823.76
	11/11/02	30-80	44.53	868.28	823.75
	12/12/02[1]	30-80	44.38	868.28	823.90
	02/18/03[1]	30-80	44.52	868.28	823.76
	03/11/03	30-80	44.45	868.28	823.83
	05/14/03[1]	30-80	43.51	868.28	824.77
	09/04/03[1]	30-80	43.54	868.28	824.74
	12/03/03[1]	30-80	43.59	868.28	824.69
	03/03/04[1]	30-80	43.60	868.28	824.68
	06/08/04[3]	30-80	42.92	868.28	825.36
	09/23/04[3]	30-80	43.29	868.28	824.99
	12/07/04[3]	30-80	42.86	868.28	825.42
	02/16/05[3]	30-80	42.45	868.28	825.83
	05/25/05[3]	30-80	41.47	868.28	826.81
	09/20/05[3]	30-80	41.06	868.28	827.22
	12/6/05[3,5]	30-80	40.66	868.28	827.62
	12/7/05[3]	30-80	40.68	868.28	827.60
QMW-2 (55-561849)	05/11/00	30-80	50.14	870.27	820.13
	06/11/00	30-80	50.14	870.27	820.13
	07/11/00	30-80	50.05	870.27	820.22
	08/11/00	30-80	49.86	870.27	820.41
	09/11/00	30-80	50.14	870.27	820.13
	10/11/00	30-80	49.64	870.27	820.63
	11/11/00	30-80	50.34	870.27	819.93
	12/11/00	30-80	50.61	870.27	819.66
	01/11/01	30-80	50.82	870.27	819.45
	02/11/01	30-80	50.92	870.27	819.35
	03/11/01	30-80	51.08	870.27	819.19
	04/11/01	30-80	51.16	870.27	819.11
	05/11/01	30-80	51.21	870.27	819.06
	06/11/01	30-80	51.07	870.27	819.20
	07/11/01	30-80	50.79	870.27	819.48
	08/11/01	30-80	50.12	870.27	820.15
	09/11/01	30-80	49.79	870.27	820.48
	10/11/01	30-80	49.38	870.27	820.89
	11/11/01	30-80	48.94	870.27	821.33
	12/11/01	30-80	48.56	870.27	821.71

See Page 8 for Notes

Table 1. Results of Depth to Groundwater Measurements, May 2000 - December 2005
Tyson Wash WQARF Site, Quartzsite, Arizona

WELL ID (ADWR Registration Number)	Date Measured	Well Screened Interval (ft)	Depth To Groundwater (ft below Measuring Pt)	Measuring Point Elevation (ft above MSL)	Groundwater Table Elevation (ft above MSL)
QMW-2 (55-561849)	01/11/02	30-80	48.26	870.27	822.01
	02/11/02	30-80	47.94	870.27	822.33
	03/11/02	30-80	47.69	870.27	822.58
	04/11/02	30-80	47.24	870.27	823.03
	12/12/02[1]	30-80	45.90	870.27	824.37
	02/12/03[1]	30-80	45.83	870.27	824.44
	05/14/03[1]	30-80	45.40	870.27	824.87
	09/04/03[1]	30-80	45.01	870.27	825.26
	12/04/03[1]	30-80	44.17	870.27	826.10
	03/03/04[1]	30-80	43.47	870.27	826.80
	06/09/04[3]	30-80	43.56	870.27	826.71
	9/22/04[3]	30-80	43.53	870.27	826.74
	12/08/04[3]	30-80	43.25	870.27	827.02
	02/16/05[3]	30-80	42.43	870.27	827.84
	05/25/05[3]	30-80	41.69	870.27	828.58
	10/3/05[3]	30-80	41.11	870.27	829.16
	12/7/05[3]	30-80	41.84	870.27	828.43
QMW-3 (55-561848)	05/11/00	30-80	43.54	867.69	824.15
	06/11/00	30-80	43.61	867.69	824.08
	07/11/00	30-80	43.68	867.69	824.01
	08/11/00	30-80	43.69	867.69	824.00
	09/11/00	30-80	43.69	867.69	824.00
	10/11/00	30-80	43.77	867.69	823.92
	11/11/00	30-80	43.79	867.69	823.90
	12/11/00	30-80	43.82	867.69	823.87
	01/11/01	30-80	43.90	867.69	823.79
	02/11/01	30-80	43.92	867.69	823.77
	03/11/01	30-80	44.03	867.69	823.66
	04/11/01	30-80	44.09	867.69	823.60
	05/11/01	30-80	44.14	867.69	823.55
	06/11/01	30-80	44.19	867.69	823.50
	07/11/01	30-80	44.23	867.69	823.46
	08/11/01	30-80	44.29	867.69	823.40
	09/11/01	30-80	44.36	867.69	823.33
	10/11/01	30-80	44.24	867.69	823.45
	11/11/01	30-80	44.18	867.69	823.51
	12/11/01	30-80	44.19	867.69	823.50
	01/11/02	30-80	44.14	867.69	823.55
	02/11/02	30-80	44.12	867.69	823.57
	03/11/02	30-80	44.08	867.69	823.61
	04/11/02	30-80	43.92	867.69	823.77
	05/11/02	30-80	43.86	867.69	823.83
	06/11/02	30-80	43.81	867.69	823.88
	07/11/02	30-80	43.76	867.69	823.93
	08/11/02	30-80	43.72	867.69	823.97
	09/11/02	30-80	43.65	867.69	824.04
	10/11/02	30-80	43.69	867.69	824.00
	11/11/02	30-80	43.64	867.69	824.05
	12/12/02	30-80	43.54	867.69	824.15
	02/18/03[1]	30-80	43.43	867.69	824.26
	05/14/03[1]	30-80	43.64	867.69	824.05
	09/04/03[1]	30-80	43.50	867.69	824.19
	12/03/03[1]	30-80	43.51	867.69	824.18
	03/03/04[1]	30-80	43.22	867.69	824.47
	06/08/04[3]	30-80	43.42	867.69	824.27
	09/23/04[3]	30-80	43.30	867.69	824.39
	12/07/04[3]	30-80	43.25	867.69	824.44
	02/16/05[3]	30-80	42.81	867.69	824.88
	05/25/05[3]	30-80	42.03	867.69	825.66
	9/20/05[3]	30-80	41.34	867.69	826.35
	12/6/05[3,5]	30-80	41.49	867.69	826.20
	12/7/05[3]	30-80	41.21	867.69	826.48
QMW-4 (55-567650)	05/11/00	30-60	45.73	867.59	821.86
	06/11/00	30-60	45.71	867.59	821.88
	07/11/00	30-60	45.65	867.59	821.94

See Page 8 for Notes

Table 1. Results of Depth to Groundwater Measurements, May 2000 - December 2005
Tyson Wash WQARF Site, Quartzsite, Arizona

WELL ID (ADWR Registration Number)	Date Measured	Well Screened Interval (ft)	Depth To Groundwater (ft below Measuring Pt)	Measuring Point Elevation (ft above MSL)	Groundwater Table Elevation (ft above MSL)
QMW-4 (55-567650)	08/11/00	30-60	45.53	867.59	822.06
	09/11/00	30-60	44.90	867.59	822.69
	10/11/00	30-60	45.03	867.59	822.56
	11/11/00	30-60	45.62	867.59	821.97
	12/11/00	30-60	45.75	867.59	821.84
	01/11/01	30-60	45.85	867.59	821.74
	02/11/01	30-60	45.91	867.59	821.68
	03/11/01	30-60	46.05	867.59	821.54
	04/11/01	30-60	46.09	867.59	821.50
	05/11/01	30-60	46.13	867.59	821.46
	06/11/01	30-60	46.15	867.59	821.44
	07/11/01	30-60	46.15	867.59	821.44
	08/11/01	30-60	46.15	867.59	821.44
	09/11/01	30-60	46.18	867.59	821.41
	10/11/01	30-60	46.41	867.59	821.18
	11/11/01	30-60	46.59	867.59	821.00
	12/11/01	30-60	46.75	867.59	820.84
	01/11/02	30-60	46.87	867.59	820.72
	02/11/02	30-60	45.52	867.59	822.07
	03/11/02	30-60	45.41	867.59	822.18
	04/11/02	30-60	45.22	867.59	822.37
	05/11/02	30-60	45.06	867.59	822.53
	06/11/02	30-60	44.93	867.59	822.66
	07/11/02	30-60	44.81	867.59	822.78
	08/11/02	30-60	44.72	867.59	822.87
	09/11/02	30-60	44.63	867.59	822.96
	10/11/02	30-60	44.58	867.59	823.01
	11/11/02	30-60	44.54	867.59	823.05
	12/12/02[1]	30-60	44.45	867.59	823.14
	02/12/03[1]	30-60	44.43	867.59	823.16
	05/14/03[1]	30-60	44.16	867.59	823.43
	09/04/03[1]	30-60	44.01	867.59	823.58
	12/03/03[1]	30-60	44.20	867.59	823.39
	03/03/04[1]	30-60	43.75	867.59	823.84
	06/08/04[3]	30-60	43.52	867.59	824.07
	09/23/04[3]	30-60	43.48	867.59	824.11
	12/08/04[3]	30-60	43.38	867.59	824.21
	02/17/05[3]	30-60	43.04	867.59	824.55
	05/25/05[3]	30-60	42.23	867.59	825.36
	09/20/05[3]	30-60	41.67	867.59	825.92
	12/6/05[3,5]	30-60	42.14	867.59	825.45
	12/7/05[3]	30-60	41.18	867.59	826.41
QMW-5 (55-567649)	05/11/00	35-65	42.56	867.05	824.49
	06/11/00	35-65	42.64	867.05	824.41
	07/11/00	35-65	42.72	867.05	824.33
	08/11/00	35-65	42.75	867.05	824.30
	09/11/00	35-65	42.78	867.05	824.27
	10/11/00	35-65	42.81	867.05	824.24
	11/11/00	35-65	42.88	867.05	824.17
	12/11/00	35-65	42.92	867.05	824.13
	01/11/01	35-65	42.98	867.05	824.07
	02/11/01	35-65	43.01	867.05	824.04
	03/11/01	35-65	43.11	867.05	823.94
	04/11/01	35-65	43.16	867.05	823.89
	05/11/01	35-65	43.21	867.05	823.84
	06/11/01	35-65	43.26	867.05	823.79
	07/11/01	35-65	43.30	867.05	823.75
	08/11/01	35-65	43.36	867.05	823.69
	09/11/01	35-65	43.42	867.05	823.63
	10/11/01	35-65	43.35	867.05	823.70
	11/11/01	35-65	43.32	867.05	823.73
	12/11/01	35-65	43.31	867.05	823.74
	01/11/02	35-65	43.13	867.05	823.92
	02/11/02	35-65	43.20	867.05	823.85
	03/11/02	35-65	43.16	867.05	823.89
	04/11/02	35-65	43.12	867.05	823.93
	12/12/02[1]	35-65	42.77	867.05	824.28

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Table 1. Results of Depth to Groundwater Measurements, May 2000 - December 2005
Tyson Wash WQARF Site, Quartzsite, Arizona

WELL ID (ADWR Registration Number)	Date Measured	Well Screened Interval (ft)	Depth To Groundwater (ft below Measuring Pt)	Measuring Point Elevation (ft above MSL)	Groundwater Table Elevation (ft above MSL)
QMW-5	02/18/03[1]	35-65	41.65	867.05	825.40
(55-567649)	05/14/03[1]	35-65	42.73	867.05	824.32
	09/04/03[1]	35-65	42.72	867.05	824.33
	12/03/03[1]	35-65	42.68	867.05	824.37
	03/04/04[1]	35-65	42.47	867.05	824.58
	06/08/04[3]	35-65	42.63	867.05	824.42
	09/23/04[3]	35-65	42.48	867.05	824.57
	12/07/04[3]	35-65	42.48	867.05	824.57
	02/16/05[3]	35-65	42.04	867.05	825.01
	05/25/05[3]	35-65	41.18	867.05	825.87
	09/20/05[3]	35-65	40.51	867.05	826.54
	12/6/05[3,5]	35-65	40.30	867.05	826.75
	12/7/05[3]	35-65	40.29	867.05	826.76
QMW-6	05/11/00	35-70	42.29	870.28	827.99
(55-578364)	06/11/00	35-70	42.34	870.28	827.94
	07/11/00	35-70	42.46	870.28	827.82
	08/11/00	35-70	42.51	870.28	827.77
	09/11/00	35-70	42.60	870.28	827.68
	10/11/00	35-70	42.69	870.28	827.59
	11/11/00	35-70	42.77	870.28	827.51
	12/11/00	35-70	42.83	870.28	827.45
	01/11/01	35-70	42.91	870.28	827.37
	02/11/01	35-70	42.93	870.28	827.35
	03/11/01	35-70	43.00	870.28	827.28
	04/11/01	35-70	42.94	870.28	827.34
	05/11/01	35-70	42.89	870.28	827.39
	06/11/01	35-70	42.99	870.28	827.29
	07/11/01	35-70	43.04	870.28	827.24
	08/11/01	35-70	43.10	870.28	827.18
	09/11/01	35-70	43.18	870.28	827.10
	10/11/01	35-70	43.25	870.28	827.03
	11/11/01	35-70	43.37	870.28	826.91
	12/11/01	35-70	43.45	870.28	826.83
	01/11/02	35-70	43.50	870.28	826.78
	02/11/02	35-70	43.56	870.28	826.72
	03/11/02	35-70	43.60	870.28	826.68
QMW-7	05/11/00	35-70	41.34	866.75	825.41
(55-577300)	06/11/00	35-70	41.40	866.75	825.35
	07/11/00	35-70	41.77	866.75	824.98
	08/11/00	35-70	41.73	866.75	825.02
	09/11/00	35-70	41.77	866.75	824.98
	10/11/00	35-70	41.90	866.75	824.85
	11/11/00	35-70	41.88	866.75	824.87
	12/11/00	35-70	41.93	866.75	824.82
	01/11/01	35-70	42.02	866.75	824.73
	02/11/01	35-70	42.05	866.75	824.70
	03/11/01	35-70	42.09	866.75	824.66
	04/11/01	35-70	42.07	866.75	824.68
	05/11/01	35-70	42.09	866.75	824.66
	06/11/01	35-70	42.17	866.75	824.58
	07/11/01	35-70	42.23	866.75	824.52
	08/11/01	35-70	42.30	866.75	824.45
	09/11/01	35-70	42.37	866.75	824.38
	10/11/01	35-70	42.38	866.75	824.37
	11/11/01	35-70	42.40	866.75	824.35
	12/11/01	35-70	42.53	866.75	824.22
	01/11/02	35-70	42.44	866.75	824.31
	02/11/02	35-70	42.43	866.75	824.32
	03/11/02	35-70	42.40	866.75	824.35
	04/11/02	35-70	42.43	866.75	824.32
	05/11/02	35-70	42.41	866.75	824.34
	06/11/02	35-70	42.45	866.75	824.30
	07/11/02	35-70	42.42	866.75	824.33
	08/11/02	35-70	42.42	866.75	824.33
	09/11/02	35-70	42.39	866.75	824.36
	10/11/02	35-70	42.50	866.75	824.25
	11/11/02	35-70	42.42	866.75	824.33
	12/12/02	35-70	NM	866.75	--

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Table 1. Results of Depth to Groundwater Measurements, May 2000 - December 2005
Tyson Wash WQARF Site, Quartzsite, Arizona

WELL ID (ADWR Registration Number)	Date Measured	Well Screened Interval (ft)	Depth To Groundwater (ft below Measuring Pt)	Measuring Point Elevation (ft above MSL)	Groundwater Table Elevation (ft above MSL)
QMW-7 (55-577300)	02/18/03[1]	35-70	41.89	866.75	824.86
	05/14/03[1]	35-70	41.91	866.75	824.84
	09/04/03[1]	35-70	42.11	866.75	824.64
	12/03/03[1]	35-70	42.08	866.75	824.67
	03/04/04[1]	35-70	41.92	866.75	824.83
	06/08/04[3]	35-70	42.13	866.75	824.62
	09/23/04[3]	35-70	42.08	866.75	824.67
	12/07/04[4]	35-70	NM	866.75	--
	02/16/05[3]	35-70	40.99	866.75	825.76
	05/25/05[3]	35-70	39.97	866.75	826.78
	9/20/05[3]	35-70	39.39	866.75	827.36
	12/7/05[3]	35-70	39.17	866.75	827.58
QMW-8 (55-577298)	05/11/00	35-75	52.44	867.21	814.77
	06/11/00	35-75	52.37	867.21	814.84
	07/11/00	35-75	52.29	867.21	814.92
	08/11/00	35-75	52.15	867.21	815.06
	09/11/00	35-75	52.51	867.21	814.70
	10/11/00	35-75	52.52	867.21	814.69
	11/11/00	35-75	52.52	867.21	814.69
	12/11/00	35-75	52.55	867.21	814.66
	01/11/01	35-75	52.72	867.21	814.49
	02/11/01	35-75	52.89	867.21	814.32
	03/11/01	35-75	53.00	867.21	814.21
	04/11/01	35-75	52.75	867.21	814.46
	05/11/01	35-75	52.56	867.21	814.65
	06/11/01	35-75	52.59	867.21	814.62
	07/11/01	35-75	52.91	867.21	814.30
	08/11/01	35-75	53.07	867.21	814.14
	09/11/01	35-75	53.07	867.21	814.14
	10/11/01	35-75	52.98	867.21	814.23
	11/11/01	35-75	52.87	867.21	814.34
	12/11/01	35-75	52.66	867.21	814.55
	01/11/02	35-75	52.62	867.21	814.59
	02/11/02	35-75	52.73	867.21	814.48
	03/11/02	35-75	52.54	867.21	814.67
	04/11/02	35-75	52.33	867.21	814.88
	05/11/02	35-75	52.33	867.21	814.88
	06/11/02	35-75	52.20	867.21	815.01
	07/11/02	35-75	52.29	867.21	814.92
	08/11/02	35-75	52.21	867.21	815.00
	09/11/02	35-75	52.16	867.21	815.05
	10/11/02	35-75	52.14	867.21	815.07
	11/11/02	35-75	52.08	867.21	815.13
	12/12/02	35-75	51.97	867.21	815.24
	02/12/03	35-75	51.89	867.21	815.32
	05/14/03[1]	35-75	51.41	867.21	815.80
	09/04/03[1]	35-75	51.36	867.21	815.85
	12/03/03[1]	35-75	51.15	867.21	816.06
	03/03/04[1]	35-75	50.87	867.21	816.34
	06/08/04[3]	35-75	50.78	867.21	816.43
	09/23/04[3]	35-75	50.61	867.21	816.60
	12/08/04[3]	35-75	50.47	867.21	816.74
	02/17/05[3]	35-75	50.10	867.21	817.11
	05/25/05[3]	35-75	49.78	867.21	817.43
	09/20/05[3]	35-75	49.32	867.21	817.89
	12/6/05[3,5]	35-75	49.03	867.21	818.18
	12/7/05[3]	35-75	49.03	867.21	818.18
QMW-9 (55-577299)	05/11/00	35-70	53.30	869.03	815.73
	06/11/00	35-70	52.26	869.03	816.77
	07/11/00	35-70	51.31	869.03	817.72
	08/11/00	35-70	50.90	869.03	818.13
	09/11/00	35-70	50.29	869.03	818.74
	10/11/00	35-70	49.89	869.03	819.14
	11/11/00	35-70	50.29	869.03	818.74
	12/11/00	35-70	50.84	869.03	818.19
	01/11/01	35-70	51.29	869.03	817.74
	02/11/01	35-70	51.82	869.03	817.21

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Table 1. Results of Depth to Groundwater Measurements, May 2000 - December 2005
Tyson Wash WQARF Site, Quartzsite, Arizona

WELL ID (ADWR Registration Number)	Date Measured	Well Screened Interval (ft)	Depth To Groundwater (ft below Measuring Pt)	Measuring Point Elevation (ft above MSL)	Groundwater Table Elevation (ft above MSL)
QMW-9 (55-577299)	03/11/01	35-70	51.67	869.03	817.36
	04/11/01	35-70	51.92	869.03	817.11
	05/11/01	35-70	52.05	869.03	816.98
	06/11/01	35-70	51.71	869.03	817.32
	07/11/01	35-70	51.19	869.03	817.84
	08/11/01	35-70	50.25	869.03	818.78
	09/11/01	35-70	49.80	869.03	819.23
	10/11/01	35-70	49.18	869.03	819.85
	11/11/01	35-70	48.77	869.03	820.26
	12/11/01	35-70	48.64	869.03	820.39
	01/11/02	35-70	47.78	869.03	821.25
	12/12/02[1]	35-70	45.65	869.03	823.38
	02/12/03[1]	35-70	45.60	869.03	823.43
	05/14/03[1]	35-70	45.19	869.03	823.84
	09/04/03[1]	35-70	45.01	869.03	824.02
	12/04/03[1]	35-70	44.70	869.03	824.33
	03/03/04[1]	35-70	44.11	869.03	824.92
	06/09/04[3]	35-70	43.68	869.03	825.35
	09/22/04[3]	35-70	43.53	869.03	825.50
	12/08/04[3]	35-70	43.21	869.03	825.82
	02/16/05[3]	35-70	42.53	869.03	826.50
	05/25/05[3]	35-70	41.63	869.03	827.40
	10/03/05[3]	35-70	41.76	869.03	827.27
	12/7/05[3]	35-70	42.00	869.03	827.03
QMW-10 (55-583806)	04/11/01	45-75	54.99	869.77	814.78
	05/11/01	45-75	54.06	869.77	815.71
	06/11/01	45-75	54.10	869.77	815.67
	07/11/01	45-75	54.41	869.77	815.36
	08/11/01	45-75	54.58	869.77	815.19
	09/11/01	45-75	54.56	869.77	815.21
	10/11/01	45-75	54.42	869.77	815.35
	11/11/01	45-75	54.29	869.77	815.48
	12/11/01	45-75	53.73	869.77	816.04
	01/11/02	45-75	53.69	869.77	816.08
	02/11/02	45-75	53.82	869.77	815.95
	03/11/02	45-75	53.55	869.77	816.22
	04/04/02	45-75	53.43	869.77	816.34
	12/12/02[1]	45-75	53.05	869.77	816.72
	02/12/03[1]	45-75	53.00	869.77	816.77
	05/14/03[1]	45-75	52.60	869.77	817.17
	09/04/03[1]	45-75	52.48	869.77	817.29
	12/04/03[1]	45-75	52.43	869.77	817.34
	03/03/04[1]	45-75	52.14	869.77	817.63
	06/09/04[3]	45-75	52.18	869.77	817.59
	09/22/04[3]	45-75	51.90	869.77	817.87
	12/08/04[3]	45-75	51.74	869.77	818.03
	02/17/05[3]	45-75	51.39	869.77	818.38
	05/25/05[3]	45-75	51.10	869.77	818.67
	09/20/05[3]	45-75	50.61	869.77	819.16
	12/7/05[3]	45-75	50.30	869.77	819.47
QMW-11 (55-204757)	09/22/04[3]	35-70	44.07	868.76	824.69
	12/08/04[3]	35-70	44.20	868.76	824.56
	02/16/05[3]	35-70	43.61	868.76	825.15
	05/25/05[3]	35-70	42.72	868.76	826.04
	09/20/05[3]	35-70	42.10	868.76	826.66
	12/7/05[3,5]	35-70	41.75	868.76	827.01
	12/7/05[3]	35-70	41.74	868.76	827.02
QMW-12 (55-204757)	09/22/04[3]	35-70	44.48	869.57	825.09
	12/08/04[3]	35-70	44.53	869.57	825.04
	02/16/05[3]	35-70	43.73	869.57	825.84
	05/25/05[3]	35-70	42.78	869.57	826.79
	09/20/05[3]	35-70	42.15	869.57	827.42
	12/7/05[3]	35-70	41.77	869.57	827.80

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Table 1. Results of Depth to Groundwater Measurements, May 2000 - December 2005
Tyson Wash WQARF Site, Quartzsite, Arizona

WELL ID (ADWR Registration Number)	Date Measured	Well Screened Interval (ft)	Depth To Groundwater (ft below Measuring Pt)	Measuring Point Elevation (ft above MSL)	Groundwater Table Elevation (ft above MSL)
EW-1	03/26/03[1]	35-70	45.38	869.08	823.70
(55-596439)	05/15/03[1,2]	35-70	44.28	869.08	824.80
	06/12/03[1,2]	35-70	44.15	869.08	824.93
	09/04/03[1,2]	35-70	44.39	869.08	824.69
	12/03/03[1,2]	35-70	44.53	869.08	824.55
	03/04/04[1,2]	35-70	44.48	869.08	824.60
	06/08/04[3]	35-70	43.83	869.08	825.25
	09/23/04[3]	35-70	44.13	869.08	824.95
	12/07/04[3]	35-70	43.87	869.08	825.21
	02/18/05[3]	35-70	43.36	869.08	825.72
	05/25/05[3]	35-70	42.43	869.08	826.65
	09/20/05[3]	35-70	41.96	869.08	827.12
	12/6/05[3,5]	35-70	42.81	869.08	826.27
	12/7/05[3]	35-70	41.92	869.08	827.16
EW-2	03/26/03[1]	35-70	44.63	868.25	823.62
(55-596440)	05/15/03[1,2]	35-70	44.14	868.25	824.11
	06/12/03[1,2]	35-70	44.13	868.25	824.12
	09/04/03[1,2]	35-70	43.83	868.25	824.42
	12/03/03[1,2]	35-70	43.84	868.25	824.41
	03/04/04[1,2]	35-70	43.76	868.25	824.49
	06/08/04[3]	35-70	43.48	868.25	824.77
	09/23/04[3]	35-70	43.70	868.25	824.55
	12/07/04[3]	35-70	43.36	868.25	824.89
	02/18/05[3]	35-70	42.86	868.25	825.39
	05/25/05[3]	35-70	42.06	868.25	826.19
	09/20/05[3]	35-70	41.46	868.25	826.79
	12/6/05[3,5]	35-70	43.27	868.25	824.98
	12/7/05[3]	35-70	41.37	868.25	826.88
EW-3	10/03/05[3]	35-70	40.64	866.08	825.44
(55-205419)	12/6/05[3,5]	35-70	42.11	866.08	823.97
	12/7/05[3]	35-70	40.76	866.08	825.32
EW-4	10/03/05[3]	35-70	40.84	866.29	825.45
(55-205422)	12/6/05[3,5]	35-70	44.87	866.29	821.42
	12/7/05[3]	35-70	42.01	866.29	824.28
EW-5	10/03/05[3]	35-70	45.62	865.67	820.05
(55-205420)	12/6/05[3,5]	35-70	48.75	865.67	816.92
	12/7/05[3]	35-70	46.68	865.67	818.99
INJ-1	03/26/03[1]	45-70	45.10	868.99	823.89
(55-596441)	05/15/03[1,2]	45-70	43.92	868.99	825.07
	06/12/03[1,2]	45-70	43.51	868.99	825.48
	09/04/03[1,2]	45-70	44.40	868.99	824.59
	12/03/03[1,2]	45-70	44.60	868.99	824.39
	03/04/04[1,2]	45-70	44.57	868.99	824.42
	06/08/04[3]	45-70	43.72	868.99	825.27
	09/23/04[3]	45-70	43.70	868.99	825.29
	12/07/04[3]	45-70	43.92	868.99	825.07
	02/18/05[3]	45-70	43.43	868.99	825.56
	05/25/05[3]	45-70	42.45	868.99	826.54
	09/20/05[3]	45-70	41.97	868.99	827.02
	12/6/05[3,5]	45-70	29.50	868.99	839.49
	12/7/05[3]	45-70	41.97	868.99	827.02
INJ-2	10/03/05[3]	35-70	39.87	867.52	827.65
(55-205421)	12/6/05[3,5]	35-70	0.00	867.52	867.52
	12/7/05[3]	35-70	37.73	867.52	829.79
Adams North	09/22/04[3]		42.32		
	12/08/04[3]		42.17		
	02/18/05[3]		41.18		
	05/24/05[3]		40.32		
	09/20/05[3]		39.81		

See Page 8 for Notes

Table 1. Results of Depth to Groundwater Measurements, May 2000 - December 2005
Tyson Wash WQARF Site, Quartzsite, Arizona

WELL ID (ADWR Registration Number)	Date Measured	Well Screened Interval (ft)	Depth To Groundwater (ft below Measuring Pt)	Measuring Point Elevation (ft above MSL)	Groundwater Table Elevation (ft above MSL)
Adams North	12/7/05[3]		39.51		
Rhoades East	09/22/04[3]		43.42		
	12/08/04[3]		43.36		
	02/18/05[3]		42.87		
	05/25/05[3]		42.05		
	9/20/05[3]		41.50		
	12/7/05[3]		41.41		

Notes:

- Measuring points are located at the top north edge of the sanitary well seal at each well.
- Groundwater data collected by dedicated data loggers at approximately 12:00pm on the given date.
- Well QMW-6 has been inaccessible since March 2002 due to road construction activities.
- Groundwater data was not collected due to malfunctioning pressure transducers from wells QMW-2, QMW-5, and QMW-10 between May and November 2002; and from well QMW-9 between February and November 2002.

[1] - Groundwater data collected manually using a Heron H.01L Interface Probe.

[2] - Groundwater elevation not fully equilibrated following remedial system shut-down.

[3] - Groundwater data collected manually using a Solinst Water Level Probe

[4] - Depth to water in QMW-7 was read incorrectly on 12/07/04. Therefore, the groundwater elevation is omitted from the table.

[5] - Depth to water measured while remediation system operational.

MSL - Mean Sea Level

Checked by:_____

Table 2. Results of Depth to Groundwater Measurements - Remediation Wells
Tyson Wash WQARF Site, Quartzsite, Arizona

WELL ID	Date Measured	Time	Pumping Rate (gpm)	Injection Rate (gpm)	Static Water Level (ft below MP)	System Operational Water Level (ft below MP)
EW-1	04/07/03	1221			44.98	
	04/07/03	1319	--			47.21
Well Screened Interval = 35'-70'	04/10/03	0905			45.00	
	04/10/03	1044	2.94	NA		46.83
	04/10/03	1250	3.15	NA		46.89
	04/14/03	1021	1.76	NA		45.66
	04/14/03	1332	3.01	NA		46.48
	04/24/03	1100			44.51	
	04/24/03	1244	3.14	NA		46.59
	05/01/03	1057			44.52	
	05/01/03	1322	2.91	NA		46.50
	05/15/03	0836	2.65	NA		46.10
	05/15/03	1025			44.28	
	06/12/03	0935			44.15	
	06/12/03	1105	2.96	NA		46.07
	07/16/03	0836	2.37	NA		45.93
	07/16/03	1013			44.21	
	09/04/03	1640			44.39	
	10/13/03	1819			44.43	
	10/14/03	0731			44.38	
	11/13/03				44.40	
	12/04/03				44.53	
		1037			44.54	
		1042	2.92	NA		46.32
		1047				46.47
		1052				46.37
		1107				46.21
	03/04/04	1432			44.48	
	06/08/04				43.83	
	09/23/04	1040			44.13	
	12/07/04	910			43.87	
	02/18/05	1255			43.36	
	05/25/05	1020			42.45	
	09/20/05	1150			41.96	
	12/06/05		1.00	NA		42.81
	12/07/05				41.92	

See Page 4 for Notes

Table 2. Results of Depth to Groundwater Measurements - Remediation Wells
Tyson Wash WQARF Site, Quartzsite, Arizona

WELL ID	Date Measured	Time	Pumping Rate	Injection Rate	Static Water Level	System Operational Water Level
EW-2	04/07/03	1226			44.14	
	04/07/03	1321	--			46.84
Well Screened Interval = 35'-70'	04/10/03	0928			44.16	
	04/10/03	1047	2.96	NA		46.30
	04/10/03	1251	3.09	NA		46.98
	04/14/03	1223	2.37	NA		46.93
	04/14/03	1333	3.09	NA		47.52
	04/24/03	1100			44.12	
	04/24/03	1245	2.95	NA		46.90
	05/01/03	1322			44.07	
	05/01/03	1323	1.44	NA		45.42
	05/15/03	0837	2.98	NA		47.01
	05/15/03	1026			44.14	
	06/12/03	0936			44.13	
	06/12/03	1106	2.97	NA		46.76
	07/16/03	0838	2.48	NA		46.23
	07/16/03	1014			43.95	
	09/04/03	1640			43.83	
	10/13/03	1821			43.82	
	10/14/03	0732			43.76	
	11/13/03				43.79	
	12/04/03				43.84	
		1037			43.85	
		1042	2.94	NA		45.79
		1047				46.06
		1052				46.18
		1107				46.28
	03/04/04	1434			43.76	
	06/08/04				43.48	
	09/23/04				43.70	
	12/07/04	920			43.36	
	02/18/05	1245			42.86	
	05/25/05	1025			42.06	
	09/20/05	1200			41.46	
	12/06/05		2.00	NA		43.27
	12/07/05				41.37	

See Page 4 for Notes

Table 2. Results of Depth to Groundwater Measurements - Remediation Wells
Tyson Wash WQARF Site, Quartzsite, Arizona

WELL ID	Date Measured	Time	Pumping Rate	Injection Rate	Static Water Level	System Operational Water Level
EW-3	10/03/05	835			40.64	
	12/06/05		2.00	NA		42.11
Well Screened	12/07/05				40.76	
Interval = 35'-70'						
EW-4	10/03/05	840			40.84	
	12/06/05		2.00	NA		44.87
Well Screened	12/07/05				42.01	
Interval = 35'-70'						
EW-5	10/03/05	845			45.62	
	12/06/05		1.00	NA		48.75
Well Screened	12/07/05				46.68	
Interval = 35'-70'						

See Page 4 for Notes

Table 2. Results of Depth to Groundwater Measurements - Remediation Wells
Tyson Wash WQARF Site, Quartzsite, Arizona

WELL ID	Date Measured	Time	Pumping Rate	Injection Rate	Static Water Level	System Operational Water Level
INJ-1	04/07/03	1215			45.05	
	04/07/03	1316	NA			45.32
Well Screened Interval = 45'-70'	04/10/03	0902	NA	5.90	45.07	
	04/10/03	1033	NA	5.90		44.50
	04/10/03	1034	NA	5.90		44.52
	04/10/03	1037	NA	5.90		44.37
	04/10/03	1038	NA	5.90		44.50
	04/10/03	1041	NA	5.90		44.62
	04/10/03	1042	NA	5.90		44.68
	04/10/03	1248	NA	6.24		40.93
	04/14/03	1019	NA	4.13		41.49
	04/14/03	1336	NA	6.10		39.95
	04/24/03	1100			44.38	
	04/24/03	1243	NA	6.09		34.82
	05/01/03	1055			44.39	
	05/01/03	1320	NA	4.35		35.87
	05/15/03	0834	NA	5.63		28.11
	05/15/03	1024			43.92	
	06/12/03	0934			43.51	
	06/12/03	1104	NA	5.93		35.30
	07/16/03	0834	NA	4.85		26.68
	07/16/03	1015			43.98	
	09/04/03	1610			44.40	
	10/13/03	1818			44.49	
	10/14/03	0730			44.44	
	11/13/03				44.47	
	12/03/03	1101			44.60	
	12/04/04	1037			44.62	
	03/04/04	1430			44.57	
	06/08/04				43.72	
	09/23/04				43.84	
	12/07/04	905			43.92	
	02/18/05	1250			43.43	
	05/25/05	1030			42.45	
	09/20/05	1210			41.97	
	12/06/05		NA	1.00		29.50
	12/07/05				41.97	
INJ-2	10/03/05	855			39.87	
	12/06/05		NA	7.00		0.00
Well Screened Interval = 35'-70'	12/07/05				37.73	

Notes:
gpm - Gallons Per Minute
MP - Measuring Point
Measuring points are located at the top north edge of the sanitary well seal at each well.
Groundwater data collected manually using a Heron H.01L Interface Probe or Solinst Probe.
NA - Not Applicable

Checked by:_____

Table 3. Results of Groundwater Sample Analyses - Monitoring and Remediation Wells
Tyson Wash WQARF Site, Quartzsite, Arizona

Well ID (ADWR No.)	Date Sampled	Pump Intake Depth (ft)	Sample Flow Rate (gpm)	Volatile Organic Compound Concentrations (µg/l)			
				PCE	TCE	*cis* -1,2-DCE	1,1-DCE
QMW-1	07/30/97	68	--	**97**	4	--	--
(55-561847)	10/29/97	68	--	**81**	3.1	--	--
	05/13/98	68	--	**73**	2.6	--	--
	08/12/98	68	--	**76**	<2.5	--	--
	11/16/98	68	--	**56**	1.8	--	--
	02/22/99	68	--	**34**	1.3	--	--
	05/27/99	68	--	**51**	2.3	--	--
	05/11/00	68	6.6	**49**	<2	<2	<5
	05/11/00 **D**	68	6.6	**66**	2.4	<2	<5
	08/09/00	68	6.6	**62**	2.8	<2	<5
	10/30/00	68	--	**41**	2.7	<1	<2
	02/12/01	68	6.2	**50**	2.5	<1	<2
	05/08/01	68	6.2	**54**	2.7	<1	<2
	08/14/01	68	--	NA	NA	NA	NA
	11/20/01	68	6.5	**34**	2.7	<1	<2
	03/27/02	68	4.5	**51**	2.5	<1	<2
	02/18/03	68	0.052	**38**	2.4	<2	<5
	05/15/03	60	0.031	**22**	2.3	<2	<5
	09/04/03	60	0.078	**28**	4.3	<2	<5
	12/03/03	60	0.039	**38**	**5.0**	<2	<5
	03/04/04	60	0.045	**44**	3.6	<2	<5
	06/08/04	60	0.044	**38**	4.9	<1	<2
	09/23/04	60	0.046	**34**	3.1	<1	<2
	12/07/04	60	0.045	**69.6**	4.4	<1	<1
	02/17/05	60	0.050	**83**	4.1	<1	<1
	05/25/05	60	0.050	**80**	4.6	<1	<2
	09/21/05	60	0.040	**98**	**5.6**	<1	<2
	12/07/05	60	0.044	**63**	3.0	<1	<2
QMW-2	07/30/97	68	--	<2	<2	--	--
(55-561849	10/29/97	68	--	<0.5	<0.5	--	--
	11/16/97	68	--	<0.5	<0.5	--	--
	05/13/98	68	--	<0.5	<0.5	--	--
	08/12/98	68	--	<0.5	<0.5	--	--
	11/16/98	68	--	<0.5	<0.5	--	--
	02/22/99	68	--	<0.5	<0.5	--	--
	05/27/99	68	--	<2	<2	--	--
	11/04/99	68	--	<2	<2	<2	<2
	05/11/00	68	6.4	<2	<2	<2	<5
	08/09/00	68	6.5	<2	<2	<2	<5
	10/30/00	68	--	<1	<1	<1	<2
	02/12/01	68	5.1	<1	<1	<1	<2
	05/08/01	68	6.3	<1	<1	<1	<2
	08/14/01	68	6.3	<1	<1	<1	<2
	11/20/01	68	6.0	<1	<1	<1	<2
	03/27/02	68	3.5	<1	<1	<1	<2
	02/12/03	68	0.036	**9.1**	<2	<2	<5
	05/14/03	60	0.031	3.5	<2	<2	<5
	09/04/03	60	0.065	<2	<2	<2	<5
	12/04/03	60	0.039	**6.0**	<2	<2	<5
	03/03/04	60	0.042	2.2	2.3	<2	<5
	06/09/04	60	0.053	**8.0**	1.0	<1	<2
	09/22/04	60	0.044	<1	<1	<1	<2
	12/08/04	60	0.044	**8.2**	<1	<1	<1
	02/17/05	60	0.05	1.5	<1	<1	<1
	05/25/05	60	0.05	2.2	<1	<1	<2
	10/03/05	60	0.05	<1	<1	<1	<2
	12/08/05	60	0.05	1.2	<1	<1	<2
QMW-3	07/30/97	68	--	**160**	**10**	--	--
(55-561848)	07/30/97 **D**	68	--	**150**	**9.9**	--	--
	10/29/97	68	--	**160**	**9.1**	--	--
	10/29/97 **D**	68	--	**150**	**8.2**	--	--
	12/08/97	68	--	**67**	<5	--	--
	05/13/98	68	--	**110**	4.8	--	--
	05/13/98 **D**	68	--	**110**	4.9	--	--
	08/12/98	68	--	**120**	<2.5	--	--
	11/16/98	68	--	**67**	<0.5	--	--
ADEQ AWQS				**5**	**5**	**70**	**7**

See page 5 For Notes

Table 3. Results of Groundwater Sample Analyses - Monitoring and Remediation Wells
Tyson Wash WQARF Site, Quartzsite, Arizona

Well ID (ADWR No.)	Date Sampled	Pump Intake Depth (ft)	Sample Flow Rate (gpm)	Volatile Organic Compound Concentrations (µg/l)			
				PCE	TCE	*cis* -1,2-DCE	1,1-DCE
QMW-3	02/22/99	68	--	**66**	3	--	--
(55-561848)	05/27/99	68	--	**73**	3.7	--	--
	05/27/99 **D**	68	--	**73**	3.4	--	--
	05/11/00	68	7.2	**130**	4.1	<2	<5
	09/08/00	68	6.8	**80**	4.3	1.4	<2
	09/08/00	68	6.8	**81**	4.7	1.6	<2
	10/30/00	68	--	**96**	4.7	1.5	<2
	10/30/00 **D**	68	--	**98**	**5.1**	1.5	<2
	02/12/01	68	5.8	**130**	4.5	1.2	<2
	05/08/01	68	6.0	**130**	4.7	1.3	<2
	08/15/01	68	7.1	**110**	**5.7**	1.7	<2
	11/20/01	68	7.1	**160**	**5.2**	1.5	<2
	03/27/02	68	4.5	**140**	**5.2**	1.6	<2
	02/18/03	68	0.047	**69**	4.5	<2	<5
	02/18/03 **D**	60	0.047	**75**	4.6	<2	<5
	05/15/03	60	--	**40**	3.3	<2	<5
	09/04/03	60	0.1	**46**	3.7	<2	<5
	12/03/03	60	0.039	**70**	**5.3**	<2	<5
	03/04/04	60	0.049	**83**	**5.1**	<2	<5
	3/04/04 **D**	60	0.049	**92**	**5.4**	<2	<5
	06/08/04	60	0.044	**60**	4.0	1.1	<2
	6/08/04**D**	60	0.044	**68**	**5.5**	1.4	<2
	09/23/04	60	0.053	**52**	3.8	<1	<2
	9/23/04**D**	60	0.053	**53**	4.0	<1	<2
	12/07/04	60	0.044	**84.2**	4.5	1.0	<1
	12/07/04**D**	60	0.044	**95.4**	4.6	<1	<1
	02/17/05	60	0.046	**100**	4.4	1.1	<1
	02/17/05**D**	60	0.046	**100**	4.3	1.1	<1
	05/25/05	60	0.046	**61**	4.5	<1	<2
	05/25/05**D**	60	0.046	**130**	4.8	1.2	<2
	09/21/05	60	0.045	**160**	**6.0**	1.1	<2
	9/21/05**D**	60	0.045	**150**	**5.6**	1.1	<2
	12/07/05	60	0.049	**200**	**6.2**	1.3	<2
	12/7/05**D**	60	0.049	**200**	**6.5**	1.3	<2
QMW-4	03/26/98	62	--	**29**	<1	--	--
(55-567650)	05/13/98	62	--	**33**	1	--	--
	08/12/98	62	--	**32**	0.59	--	--
	11/16/98	62	--	**39**	0.97	--	--
	02/22/99	62	--	**45**	1.4	--	--
	02/22/99 **D**	62	--	**38**	1.2	--	--
	05/27/99	62	--	**57**	<2	--	--
	05/11/00	62	6.4	**57**	<2	<2	<5
	09/08/00	62	--	**33**	1.6	<1	<2
	10/30/00	62	--	**40**	1.7	<1	<2
	02/12/01	62	5.5	**38**	1.2	<1	<2
	05/08/01	62	6.0	**43**	1.4	<1	<2
	05/08/01 **D**	62	6.0	**42**	1.3	<1	<2
	08/14/01	62	5.8	**44**	1.6	<1	<2
	11/20/01	62	7.0	**36**	1.4	<1	<2
	03/27/02	62	3.0	**52**	3.1	<1	<2
	02/12/03	62	0.052	**36**	2.9	<2	<5
	05/15/03	60	0.031	**14**	<2	<2	<5
	09/04/03	60	0.065	**26**	3.1	<2	<5
	09/04/03 **D**	60	0.065	**25**	3.1	<2	<5
	12/03/03	60	0.039	**26**	**5.0**	<2	<5
	03/03/04	60	0.038	**31**	3.6	<2	<5
	06/08/04	60	0.044	**19**	4.1	<1	<2
	09/23/04	60	0.053	**18**	2.6	<1	<2
	12/08/04	60	0.045	**55.9**	3.7	<1	<1
	02/18/05	60	0.046	**49**	2.9	<1	<1
	05/25/05	60	0.043	**18**	2.0	<1	<2
	09/21/05	60	0.044	**80**	4.5	<1	<2
	12/07/05	60	0.045	**96**	4.9	<1	<2
QMW-5	04/03/98	55	--	**130**	<5	--	--
(55-567649)	05/13/98	55	--	**130**	<5	--	--
	08/12/98	55	--	**160**	<5	--	--
	08/12/98 D	55	--	**180**	<2.5	--	--
ADEQ AWQS				**5**	**5**	**70**	**7**

See page 5 For Notes

Table 3. Results of Groundwater Sample Analyses - Monitoring and Remediation Wells
Tyson Wash WQARF Site, Quartzsite, Arizona

Well ID (ADWR No.)	Date Sampled	Pump Intake Depth (ft)	Sample Flow Rate (gpm)	Volatile Organic Compound Concentrations (µg/l)			
				PCE	TCE	*cis* -1,2-DCE	1,1-DCE
QMW-5	11/16/98	55	--	**86**	<10	--	--
(55-567649)	11/16/98 D	55	--	**69**	<10	--	--
	02/22/99	55	--	**37**	1.1	--	--
	05/27/99	55	--	**38**	<2	--	--
	05/11/00	55	6.6	**60**	<2	<2	<5
	09/08/00	55	--	**34**	1.3	<1	<2
	10/30/00	55	--	**34**	1.4	<1	<2
	02/12/01	55	4.9	**40**	1.1	<1	<2
	05/08/01	55	6.1	**46**	1.1	<1	<2
	08/14/01	55	7.0	**46**	1.3	<1	<2
	11/20/01	55	6.0	**38**	1.2	<1	<2
	11/20/01 **D**	55	6.0	**37**	1.2	<1	<2
	03/27/02	55	3.0	**30**	1.1	<1	<2
	03/27/02 **D**	55	3.0	**31**	1.1	<1	<2
	02/18/03	55	0.057	**8.7**	<2	<2	<5
	05/14/03	55	0.031	3.1	<2	<2	<5
	09/04/03	55	--	**6.6**	2.7	<2	<5
	12/03/03	55	0.039	**31**	3.2	<2	<5
	03/04/04	55	0.039	**11**	<2	<2	<5
	06/08/04	55	0.050	**12**	2.6	<1	<2
	09/23/04	50	0.046	4.7	1.5	<1	<2
	12/07/04	50	0.045	**10.5**	1.8	<1	<1
	02/17/05	50	0.044	**13**	1.7	<1	<1
	05/25/05	50	0.050	**6.0**	<1	<1	<2
	09/21/05	50	0.049	**20.0**	1.9	<1	<2
	12/08/05	50	0.050	**17**	2.0	<1	<2
QMW-6 [1]	05/11/00	68	6.4	<2	<2	<2	<5
(55-578364)	09/08/00	68	--	<1	<1	<1	<2
	10/30/00	68	--	<1	<1	<1	<2
	02/12/01	68	8.5	<1	<1	<1	<2
	05/08/01	68	9.5	<1	<1	<1	<2
	08/14/01	68	--	<1	<1	<1	<2
	11/20/01	68	8.2	<1	<1	<1	<2
	03/27/02	68	3.5	<1	<1	<1	<2
QMW-7	05/11/00	68	7.0	**7**	<2	<2	<5
(55-577300)	08/09/00	68	9.4	**11**	<2	<2	<5
	10/30/00	68	--	**12**	<1	<1	<2
	02/12/01	68	8.9	**9**	<1	<1	<2
	05/08/01	68	9.8	**10**	<1	<1	<2
	08/14/01	68	7.3	**11**	<1	<1	<2
	11/20/01	68	10.1	**10**	<1.0	<1	<2
	03/27/02	68	5.0	**11**	<1	<1	<2
	02/18/03	68	0.029	**6.7**	<2	<2	<5
	05/14/03	60	0.033	3.0	<2	<2	<5
	09/04/03	60	0.068	**6.3**	<2	<2	<5
	12/03/03	60	0.039	**21**	<2	<2	<5
	12/03/03 **D**	60	0.039	**20**	<2	<2	<5
	03/04/04	60	0.050	**13**	<2	<2	<5
	06/08/04	60	0.046	**9.7**	1.2	<1	<2
	09/23/04	60	0.053	1.9	<1	<1	<2
	12/07/04	60	0.044	**6.7**	<1	<1	<1
	02/17/05	60	0.046	3.9	<1	<1	<1
	05/26/05	60	0.046	**10.0**	<1	<1	<2
	09/21/05	60	0.045	4.2	<1	<1	<2
	12/08/05	60	0.045	4.5	<1	<1	<2
QMW-8	05/11/00	68	5.0	2	<2	<2	<5
(55-577298)	08/09/00	68	6.2	4	<2	<2	<5
	10/30/00	68	--	4	<1	<1	<2
	02/12/01	68	4.9	5	<1	<1	<2
	02/12/01 **D**	68	4.9	4	<1	<1	<2
	05/08/01	68	5.8	4	<1	<1	<2
	08/14/01	68	4.2	**5.1**	<1	<1	<2
	11/20/01	68	5.8	3	<1	<1	<2
	03/27/02	68	4.0	4.6	<1	<1	<2
	02/12/03	68	0.031	**5.8**	<2	<2	<5
	05/15/03	60	0.031	3.8	<2	<2	<5
ADEQ AWQS				**5**	**5**	**70**	**7**

See page 5 For Notes

Table 3. Results of Groundwater Sample Analyses - Monitoring and Remediation Wells
Tyson Wash WQARF Site, Quartzsite, Arizona

Well ID (ADWR No.)	Date Sampled	Pump Intake Depth (ft)	Sample Flow Rate (gpm)	Volatile Organic Compound Concentrations (µg/l)			
				PCE	TCE	*cis* -1,2-DCE	1,1-DCE
QMW-8	09/04/03	60	0.068	**9.7**	<2	<2	<5
(55-577298)	12/03/03	60	0.039	**14**	2.4	<2	<5
	03/03/04	60	0.044	**5.2**	<2	<2	<5
	06/08/04	60	0.038	**9.6**	2.0	<1	<2
	09/23/04	60	0.044	**6.9**	<1	<1	<2
	12/08/04	60	0.045	**18.8**	<1	<1	<1
	02/18/05	60	0.046	**15**	<1	<1	<1
	05/25/05	60	0.043	<1	<1	<1	<2
	09/21/05	60	0.050	**15**	<1	<1	<2
	12/07/05	60	0.045	**11**	<1	<1	<2
QMW-9	05/11/00	68	6.8	<2	<2		<5
(55-577299)	09/08/00	68	--	<1	<1	<1	<2
	10/30/00	68	--	<1	<1	<1	<2
	02/12/01	68	5.3	<1	<1	<1	<2
	05/08/01	68	6.0	<1	<1	<1	<2
	08/14/01	68	6.8	1.5	<1	<1	<2
	11/20/01	68	6.3	<1	<1	<1	<2
	03/27/02	68	3.5	<1	<1	<1	<2
	02/12/03	68	0.031	4.0	<2	<2	<5
	05/14/03	60	0.03	3.2	<2	<2	<5
	09/04/03	60	0.062	<2	2.5	<2	<5
	12/04/03	60	0.039	**7.4**	<2	<2	<5
	03/03/04	60	0.034	<2	<2	<2	<5
	06/09/04	60	0.045	**9.0**	1.4	<1	<2
	09/22/04	60	0.046	<1	<1	<1	<2
	12/08/04	60	0.045	**6.5**	<1	<1	<1
	02/17/05	60	0.045	1.3	<1	<1	<1
	05/25/05	60	0.043	4.8	<1	<1	<2
	10/03/05	60	0.049	<1	<1	<1	<2
	12/08/05	60	0.045	1.5	<1	<1	<2
QMW-10	03/06/01	68	5.8	<1	<1	<1	<2
(55-583806)	05/08/01	68	5.7	<1	<1	<1	<2
	08/14/01	68	6.5	<1	<1	<1	<2
	11/20/01	68	6.3	2	<1	<1	<2
	03/27/02	68	5.0	<1	<1	<1	<2
	02/12/03	68	0.047	<2	<2	<2	<5
	05/14/03	60	0.031	3.7	<2	<2	<5
	09/04/03	60	0.039	<2	4	<2	<5
	12/04/03	60	0.039	**10**	<2	<2	<5
	03/03/04	60	0.045	2.1	<2	<2	<2
	06/09/04	60	0.050	**12**	1.5	<1	<2
	09/23/04	60	0.044	**10**	<1	<1	<2
	12/08/04	60	0.045	**7.7**	<1	<1	<1
	02/17/05	60	0.044	**5.1**	<1	<1	<1
	05/26/05	60	0.046	**6.6**	<1	<1	<2
	09/21/05	60	0.049	**13.0**	<1	<1	<2
	12/08/05	60	0.044	**11**	<1	<1	<2
QMW-11	09/22/04	60	0.046	2.5	<1	<1	<2
	12/08/04	60	0.044	**15.4**	<1	<1	<1
	02/17/05	60	0.046	**7.4**	<1	<1	<1
	05/26/05	60	0.043	**11.0**	<1	<1	<2
	09/21/05	60	0.044	**12.0**	<1	<1	<2
	12/08/05	60	0.045	**18**	<1	<1	<2
QMW-12	09/22/04	60	0.046	1.6	<1	<1	<2
	12/07/04	60	0.045	**28.1**	<1	<1	<1
	02/17/05	60	0.044	2.4	<1	<1	<1
	05/26/05	60	0.050	3.1	<1	<1	<2
	09/21/05	60	0.045	2.3	<1	<1	<2
	12/08/05	60	0.044	3.8	<1	<1	<2
OB-2	08/09/00	68	--	**5.7**	<2	<2	<5
INFLUENT	04/07/03	--	--	**89**	4	**0.74**	4
EFFLUENT 1	04/07/03	--	--	--	--	<0.5	<0.5
EFFLUENT 2	04/07/03	--	--	--	--	<0.5	<0.5
EFF	06/08/04	--	--	1.1	<1	<1	<2
	02/18/05	--	--	**8.4**	<1	<1	<2
	05/25/05	--	--	<1	<1	<1	<2
	10/20/05	--	--	<1	<1	<1	<2
ADEQ AWQS				**5**	**5**	**70**	**7**

See Page 5 for Notes

Table 3. Results of Groundwater Sample Analyses - Monitoring and Remediation Wells
Tyson Wash WQARF Site, Quartzsite, Arizona

Well ID (ADWR No.)	Date Sampled	Pump Intake Depth (ft)	Sample Flow Rate (gpm)	Volatile Organic Compound Concentrations (µg/l)			
				PCE	TCE	*cis* -1,2-DCE	1,1-DCE
EFF	12/06/05	--	--	1.5	<1	<1	<2
EW-1	03/26/03	55.5	0.033	**28**	2.2	<2	<5
(55-596439)	05/15/03	60	--	**24**	<2	<2	<5
	06/12/03	60	--	**15**	<2	<2	<5
	07/16/03	60	2.74	**12**	<2	<2	<5
	09/04/03	60	2.89	**9.7**	<2	<2	<5
	10/14/03	60	--	**6.4**	<2	<2	<5
	11/13/03	60	2.5	4.7	<2	<2	<5
	12/03/03	60	2.92	3.8	<2	<2	<5
	02/10/04	60		3.3	<2	<2	<5
	03/04/04	60		2.5	<2	<2	<5
	06/08/04	60		2.7	<1	<1	<2
	09/23/04	60		2.3	<1	<1	<2
	12/07/04	60		4.1	<1	<1	<1
	02/18/05	60		**7.8**	<1	<1	<1
	05/25/05	60		1.5	<1	<1	<2
	09/21/05	60		<1	<1	<1	<2
	12/06/05	60	1.00	<1	<1	<1	<2
EW-2	03/26/03	55.5	0.068	**30**	2.1	<2	<5
(55-596440)	05/15/03	60	--	**56**	2.2	<2	<5
	06/12/03	60	--	**34**	<2	<2	<5
	07/16/03	60	3.05	**35**	<2	<2	<5
	09/04/03	60	2.96	**15**	<2	<2	<5
	10/14/03		--	4.4	<2	<2	<5
	11/13/03		2.7	4.1	<2	<2	<5
	12/04/03	60	2.94	2.4	<2	<2	<5
	02/10/04	60		2.5	<2	<2	<5
	03/04/04	60		2.7	<2	<2	<5
	06/08/04	60		**18**	<1	<1	<2
	09/23/04	60		**6.1**	<1	<1	<2
	12/07/04	60		**26.6**	1.2	<1	<1
	02/18/05	60		**13.0**	<1	<1	<1
	05/25/05	60		**22.0**	<1	<1	<2
	09/21/05	60		**9.2**	<1	<1	<2
	12/06/05	60	2.00	**16**	<1	<1	<2
EW-3	10/03/05	60	0.05	**27.0**	1.2	<1	<2
(55-205419)	12/06/05	60		**120**	4.4	1.1	<2
	12/06/05**D**	60	2.00	**120**	4.3	<1	<2
EW-4	10/03/05	60	0.045	**6.6**	<1	<1	<2
(55-205422)	12/06/05	60	2.00	**55**	3.4	<1	<2
EW-5	10/03/05	60	0.045	<1	<1	<1	<2
(55-20520)	12/06/05	60	1.00	2.0	<1	<1	<2
INJ-1	03/26/03	55.5	0.068	**52**	3.5	<2	<5
(55-596441)	05/15/03	60	--	**7.5**	<2	<2	<5
	06/12/03	60	0.031	3.2	<2	<2	<5
	07/16/03	60	0.039	3.4	<2	<2	<5
	09/04/03	60	0.034	4.5	<2	<2	<5
	10/14/03	60	0.039	<2	3.2	<2	<5
	11/13/03	60	0.039	<2	3.5	<2	<5
	12/03/03	60	0.039	<2	3.3	<2	<5
	02/10/04	60		<2	2.6	<2	<5
	03/04/04	60	0.049	**28**	<2	<2	<5
	06/08/04	60	0.046	**7.1**	1.8	<1	<2
	09/23/04	60	0.046	<1	<1	<1	<2
	12/07/04	60		**6.1**	<1	<1	<1
	02/18/05	60	0.05	**15**	<1	<1	<1
	05/25/05	60	0.05	<1	<1	<1	<2
	09/21/05	60	0.045	3	<1	<1	<2
	12/06/05	60	0.045	2.0	<1	<1	<2
INJ-2	10/03/05	60	0.044	**8.0**	<1	<1	<2
(55-205421)	12/06/05	60	0.044	1.7	<1	<1	<2
ADEQ AWQS				**5**	**5**	**70**	**7**

Notes:

µg/l - micrograms per liter
PCE - tetrachloroethene
TCE - trichloroethene
cis -1,2-DCE - *cis* -1,2-dichloroethene
1,1-DCE - 1,1-dichloroethene
-- - data unavailable

EPA - U.S. Environmental Protection Agency
ADEQ - Arizona Department of Environmental Quality
AWQS - Aquifer Water Quality Standards
NE - Not Established
NA - Not Analyzed
D - Duplicate Sample

[1] - Well QMW-6 has been inaccessible since March 2002 due to road construction activity. Abandoned 1/22/04.

Checked by:_____

Table 4. Results of Groundwater Sample Analyses - Domestic Wells
Tyson Wash WQARF Site, Quartzsite, Arizona

Well ID (ADWR Number)	Date Sampled	EPA Method 8260B/524.2 [1] (µg/L)			
		PCE	TCE	cis-1,2-DCE	1,1-DCE
Cast					
B-1 [2] (55-540500)	08/08/95	1.4	<0.5	--	--
	11/04/99	**10**	0.58	<0.4	<0.4
	05/12/00	**11**	0.7	<0.5	<0.5
	08/10/00	**12**	0.84	<0.5	<0.5
	10/31/00	**11**	0.88	<0.5	<0.5
	02/13/01	**9**	0.82	<0.5	<0.5
	05/08/01	**8.2**	0.70	<0.5	<0.5
B-2 [2] (55-531202)	08/08/95	**20**	0.8	--	--
	08/08/95 **D**	**19**	0.8	--	--
	07/30/97	1.3	<0.5	--	--
	10/29/97	**4.1**	<0.5	--	--
	05/13/98	**22**	0.96	--	--
	08/12/98	**25**	<0.5	--	--
	11/16/98	**22**	0.54	--	--
	02/22/99	**37**	1.6	--	--
	05/27/99	**42**	2.1	--	--
B-3 (deep well) (55-526878)	02/07/00	<2	<2	<2	<1
	05/12/00	<0.5	<0.5	<0.5	<0.5
	08/10/00	<0.5	<0.5	<0.5	<0.5
	10/31/00	<0.5	<0.5	<0.5	<0.5
	02/13/01	<0.5	<0.5	<0.5	<0.5
	05/08/01	<0.5	<0.5	<0.5	<0.5
	08/15/01	NA	NA	NA	NA
	11/21/01	<0.5	<0.5	<0.5	<0.5
	11/21/01 **D**	<0.5	<0.5	<0.5	<0.5
	03/28/02	<0.5	<0.5	<0.5	<0.5
	02/12/03	<2	<2	<2	<5
	05/14/03	NA	NA	NA	NA
	12/03/03	<2	<2	<2	<5
	03/03/04	<2	<2	<2	<5
	06/09/04	<1	<1	<1	<2
	09/22/04	<1	<1	<1	<2
	12/08/04	<1	<1	<1	<1
	02/17/05	<1	<1	<1	<1
	05/25/05	<1	<1	<1	<2
	10/03/05	sampling attempted, pump was inoperable			
	12/07/05	sampling attempted, pump was inoperable			
B-4 [2] (55-530652)	08/08/95	<0.5	<0.5	--	--
	08/30/95	0.8	<0.5	--	--
	11/04/99	<0.4	<0.4	<0.4	<0.4
Parsons (55-630831)	10/29/97	<0.5	<0.5	--	--
	05/27/99	<0.4	<0.4	--	--
	05/12/00	<0.5	<0.5	<0.5	<0.5
	10/31/00	<0.5	<0.5	<0.5	<0.5
	02/13/01	<0.5	<0.5	<0.5	<0.5
	05/08/01	<0.5	<0.5	<0.5	<0.5
	08/15/01	NA	NA	<0.5	NA
	11/21/01	<0.5	<0.5	<0.5	<0.5
	03/28/02	<0.5	<0.5	<0.5	<0.5
	02/18/03	<2	<2	<2	<5
	05/14/03	<2	<2	<2	<5
	09/04/03	<2	<2	<2	<5
	12/04/03	<2	<2	<2	<5
	03/03/04	<2	<2	<2	<5
	06/09/04	<1	<1	<1	<2
	09/22/04	<1	<1	<1	<2
	12/07/04	<1	<1	<1	<1
	02/16/05	<1	<1	<1	<1
	05/24/05	<1	<1	<1	<2
	09/21/05	<1	<1	<1	<2
	12/07/05	<1	<1	<1	<2
ADEQ AWQS		**5**	**5**	**70**	**7**

See Page 4 for Notes

Table 4. Results of Groundwater Sample Analyses - Domestic Wells
Tyson Wash WQARF Site, Quartzsite, Arizona

Well ID (ADWR Number)	Date Sampled	EPA Method 8260B/524.2 [1] (µg/L)			
		PCE	TCE	cis-1,2-DCE	1,1-DCE
Adams					
North (55-644019)	05/27/99	<0.4	<0.4	--	--
	05/12/00	<0.5	<0.5	<0.5	<0.5
	08/10/00	<0.5	<0.5	<0.5	<0.5
	10/31/00	<0.5	<0.5	<0.5	<0.5
	02/13/01	<0.5	<0.5	<0.5	<0.5
	05/08/01	<0.5	<0.5	<0.5	<0.5
	08/15/01	NA	NA	NA	NA
	11/21/01	<0.5	<0.5	<0.5	<0.5
	03/28/02	0.64	<0.5	<0.5	<0.5
	02/13/03	<2	<2	<2	<5
	05/14/03	<2	<2	<2	<5
	09/04/03	<2	<2	<2	<5
	12/04/03	<2	<2	<2	<5
	03/03/04	<2	<2	<2	<5
	06/09/04	1.2	<1	<1	<2
	09/22/04	1.1	<1	<1	<2
	12/08/04	1.4	<1	<1	<1
	02/18/05	1.3	<1	<1	<1
	05/24/05	1.0	<1	<1	<2
	09/21/05	1.1	<1	<1	<2
	12/07/05	1.1	<1	<1	<2
South (55-644020)	05/12/00	<0.5	<0.5	<0.5	<0.5
	08/10/00	<0.5	<0.5	<0.5	<0.5
	10/31/00	<0.5	<0.5	<0.5	<0.5
	02/13/01	<0.5	<0.5	<0.5	<0.5
	05/08/01	<0.5	<0.5	<0.5	<0.5
	08/15/01	NA	NA	<0.5	NA
	11/21/01	<0.5	<0.5	<0.5	<0.5
	03/28/02	0.61	<0.5	<0.5	<0.5
	02/13/03	<2	<2	<2	<5
	05/14/03	<2	<2	<2	<5
	09/04/03	<2	<2	<2	<5
	12/04/03	<2	<2	<2	<5
	03/03/04	<2	<2	<2	<5
	06/09/04	1.2	<1	<1	<2
	09/22/04	<1	<1	<1	<2
	12/08/04	1.2	<1	<1	<1
	02/18/05	1.4	<1	<1	<1
	05/24/05	<1	<1	<1	<2
	09/21/05	1.1	<1	<1	<2
	12/07/05	<1	<1	<1	<2
Rhoades West (55-526314)	10/29/97	4.9	<0.5	--	--
	02/22/99	**5.1**	<0.5	--	--
	05/14/99	4.4	<0.4	--	--
	05/27/99	**5.1**	<0.4	--	--
	10/31/00	**9.4**	<0.5	<0.5	<0.5
	02/13/01	**8.0**	<0.5	<0.5	<0.5
	05/08/01	**8.1**	<0.5	<0.5	<0.5
	05/08/01 **D**	**7.9**	<0.5	<0.5	<0.5
	08/15/01	**10.0**	<0.5	<0.5	<0.5
	11/21/01	**8.3**	<0.5	<0.5	<0.5
	03/28/02	**5.5**	<0.5	<0.5	<0.5
	03/28/02 **D**	**5.9**	<0.5	<0.5	<0.5
	02/18/03	3.3	<2	<2	<5
	05/15/03	3.2	<2	<2	<5
	09/04/03	3.2	<2	<2	<5
	09/04/03 **D**	3.0	<2	<2	<5
	12/03/03	**5.4**	<2	<2	<5
	12/03/03 **D**	**5.0**	<2	<2	<5
	03/03/04	4.3	<2	<2	<5
	03/03/04 **D**	4.5	<2	<2	<5
	06/09/04	**6.4**	<1	<1	<2
	6/9/04**D**	**6.6**	<1	<1	<2
ADEQ AWQS		**5**	**5**	**70**	**7**

See Page 4 for Notes

Table 4. Results of Groundwater Sample Analyses - Domestic Wells
Tyson Wash WQARF Site, Quartzsite, Arizona

Well ID (ADWR Number)	Date Sampled	EPA Method 8260B/524.2 [1] (µg/L)			
		PCE	TCE	cis-1,2-DCE	1,1-DCE
Rhoades West	09/22/04	**5.2**	<1	<1	<2
	9/22/04**D**	**5.6**	<1	<1	<2
	12/07/04	**7.7**	<1	<1	<1
	12/07/04**D**	**7.8**	<1	<1	<1
	02/18/05	**5.5**	<1	<1	<1
	2/18/05**D**	4.8	<1	<1	<1
	05/24/05	4.3	<1	<1	<1
	5/24/2005**D**	4.3	<1	<1	<2
	09/21/05	**6.5**	<1	<1	<2
	9/21/05**D**	**6.1**	<1	<1	<2
	12/07/05	3.4	<1	<1	<2
	12/07/05**D**	3.1	<1	<1	<2
Kauffman [2]	08/12/98	<1	<1	--	--
	05/27/99	**29**	<1	--	--
	05/08/01	**11**	<1	<0.5	<0.5
Welcome RV (55-541533)	11/09/95	**200**	**6.2**	--	--
	11/9/95 **D**	**180**	**7**	--	--
	11/04/99	**74**	<4	<4	<4
	11/04/99 **D**	**79**	<4	<4	<4
	04/03/00	**120**	**5.7**	<0.5	<0.5
	08/10/00	NA	NA	<0.5	NA
	11/16/00	**100**	4.7	<0.5	<0.5
	11/16/00 **D**	**110**	4.9	<0.5	<0.5
	02/13/01	**130**	**5.0**	<0.5	<0.5
	05/08/01	NA	NA	<0.5	NA
	08/15/01	NA	NA	<0.5	NA
	12/14/01	**120**	**5.5**	<0.5	<0.5
	03/28/02	NA	NA	<0.5	NA
	02/12/03	**160**	4.5	<2	<5
	02/12/03	**160**	4.6	<2	<5
	05/14/03	NA	NA	<0.5	NA
	11/18/03	**100**	3.8	<2	<5
	01/08/04	**92**	3.0	<2	<5
	02/10/04	**91**	3.0	<2	<5
	02/10/04 [3]	**79**	2.9	<0.5	<0.5
	03/03/04	**90**	2.9	<2	<5
	11/22/2004 [4]	**7.8**	<1	<1	<2
	12/08/04	**27.3**	<1	<1	<1
	02/16/05	**30**	<1	<1	<1
	12/07/05	**12**	<1	<1	<2
York (55-600695)	04/03/98	<0.5	<0.5	--	--
	05/27/99	<0.4	<0.4	--	--
	11/04/99	<0.4	<0.4	<4	<0.4
	05/12/00	<0.5	<0.5	<4	<0.5
	08/10/00	<0.5	<0.5	<0.5	<0.5
	10/31/00	<0.5	<0.5	<0.5	<0.5
	02/13/01	<0.5	<0.5	<0.5	<0.5
	05/08/01	<0.5	<0.5	<0.5	<0.5
	05/08/01 **D**	<0.5	<0.5	<0.5	<0.5
	08/15/01	<0.5	<0.5	<0.5	<0.5
	11/21/01	<0.5	<0.5	<0.5	<0.5
	03/27/02	<0.5	<0.5	<0.5	<0.5
	02/13/03	<2	<2	<2	<5
	05/14/03	NA	NA	NA	NA
	09/04/03	<2	<2	<2	<5
	12/04/03	<2	<2	<2	<5
	01/08/04	<2	<2	<2	<5
	03/03/04	<2	<2	<2	<5
	06/09/04	3.7	<1	<1	<2
	09/22/04	1.4	<1	<1	<2
	12/08/04	2.5	<1	<1	<1
	02/18/05	1.6	<1	<1	<1
	05/24/05	4.3	<1	<1	<2
	09/21/05	4	<1	<1	<2
	12/07/05	4.2	<1	<1	<2
ADEQ AWQS		**5**	**5**	**70**	**7**

See Page 4 for Notes

Table 4. Results of Groundwater Sample Analyses - Domestic Wells
Tyson Wash WQARF Site, Quartzsite, Arizona

Well ID (ADWR Number)	Date Sampled	EPA Method 8260B/524.2 [1] (µg/L)			
		PCE	TCE	cis-1,2-DCE	1,1-DCE
La Casa Del Rancho Restaurant					
East	11/04/99	1.5	<0.4	<0.4	<0.4
	05/12/00	NA	NA	<0.5	NA
	08/10/00	<0.5	<0.5	<0.5	<0.5
	10/31/00	<0.5	<0.5	<0.5	<0.5
	02/13/01	<0.5	<0.5	<0.5	<0.5
	05/08/01	<0.5	<0.5	<0.5	<0.5
	08/15/01	<0.5	<0.5	<0.5	<0.5
	11/21/01	<0.5	<0.5	<0.5	<0.5
	03/28/02	<0.5	<0.5	<0.5	<0.5
	02/12/03	NA	NA	NA	NA
	05/14/03	<2	<2	<2	<5
West	11/04/99	4	<0.4	<0.4	<0.4
	05/12/00	**5.1**	<0.5	<0.5	<0.5
	08/10/00	**5.9**	<0.5	<0.5	<0.5
	11/16/00	**7.6**	<0.5	<0.5	<0.5
	02/13/01	**9**	<0.5	<0.5	<0.5
	05/08/01	**8.6**	<0.5	<0.5	<0.5
	08/15/01	NA	NA	<0.5	NA
	11/21/01	**9.8**	<0.5	<0.5	<0.5
	03/28/02	<0.5	<0.5	<0.5	<0.5
	04/19/02	**10**	<0.5	<0.5	<0.5
	02/12/03	<2	<2	<2	<5
	05/14/03	**14**	<2	<2	<5
Joyce's Craft Supplies	01/08/04	<2	<2	<2	<5
Mark's Family Restaurant [2]	11/09/95	<0.5	<0.5	--	<0.5
(Formerly The Beauty Shop)	11/04/99	<0.4	<0.4	<0.4	<0.4
Post Office [2]	08/08/95	**8.5**	<0.5	--	<0.5
	11/04/99	**21**	<0.8	<0.8	<0.8
Eric's RV Repair [2]	02/07/00	0.5	<0.5	<0.5	3
(55-514430)	05/12/00	<0.5	<0.5	<0.5	<0.5
	08/10/00	<0.5	<0.5	<0.5	<0.5
	10/31/00	<0.5	<0.5	<0.5	<0.5
	02/13/01	<0.5	<0.5	<0.5	<0.5
	05/08/01	<0.5	<0.5	<0.5	<0.5
ADEQ AWQS		**5**	**5**	**70**	**7**

Notes:

[1] - Samples were analyzed by U.S. EPA Method 524.2 through March 2002, and by Method 8260B thereafter. Except where indicated, samples collected after 5/99 were analyzed by Del Mar Analytical.

[2] - Well is no longer in service

[3] - Split sample analyzed by Transwest Geochem, Inc.

[4] - Sample collected by ADEQ on 11/22/04

µg/l - micrograms per liter
PCE - tetrachloroethene
TCE - trichloroethene
1,1-DCE - 1,1-dichloroethene
MTBE - methyl-tert-butyl-ether
cis-1,2-DCE - *cis*-1,2-dichloroethene
NA - Not analyzed during this sampling event

EPA - U.S. Environmental Protection Agency
ADEQ - Arizona Department of Environmental Quality
AWQS - Aquifer Water Quality Standards
NE - Not Established
NA - Not Analyzed
D - Duplicate Sample
-- - data unavailable

Checked by:_____

APPENDICES

APPENDIX A

EXPANDED REMEDIATION SYSTEM MODELING RESULTS

LA MIRAGE RV PARK

PRIVATE

YORK (RESIDENTIAL)

QMW-10 (819.47)

EW-5 (818.99)

QMW-8 (818.18)

LA CASA DEL RANCHO (RESIDENTIAL)

RHOADES / DAY (RESIDENTIAL)

ADAMS (RESIDENTIAL)

EW-4 (824.28)

QMW-4 (826.11)

B-1

QMW-9 (827.03)

B-3

EW-3 (825.32)

WELCOME RV PARK

TRAILER

TRAILER

CAMP & STORAGE INC

PARSONS (RESIDENTIAL)

QMW-3 (826.48)

CAST (FORMERLY BRASWELL) (RESIDENTIAL)

THE JERKY STORE

KAUFFMAN (RESIDENTIAL)

EW-2 (826.88)

EW-1 (827.16)

INJ-1 (827.02)

B-4

QMW-2 (828.43)

TRUCK GARAGE

LAUNDROMAT

B-2

NORTH OREGON AVE.

WASHINGTON AVE.

CENTRAL BLVD. (US-95)

QMW-7 (827.58)

QMW-5 (826.76)

QMW-1 (827.60)

OB-2

OB-1

OB-3

COWELL ST.

COWELL ST.

COWELL ST.

HA-2 (ABANDONED)

QMW-11 (827.02)

HA-1 (ABANDONED)

INJ-2 (829.79)

JOHNSON AVE.

ERIC'S RV REPAIR

POST OFFICE

SHELL STATION

QMW-12 (827.80)

HI – ALI MOTEL / LAUNDROMAT

MARK'S FAMILY RESTAURANT (BEAUTY SHOP)

QMW-6 (ABANDONED)

OB-4

OB-5

MAIN ST. (BUSINESS LOOP I-10)

820 821 822 823 824 825 826 827 828 829

EXPLANATION

QMW-2 MONITORING WELL

QMW-2 OBSERVATION WELL

B-4 DOMESTIC WELL

GROUNDWATER CONTOUR LINE
DASHED WHERE INFERRED

GROUNDWATER FLOW DIRECTION

EW-1 WATER TREATMENT EXTRACTION AND INJECTION WELLS

NOTE: LOCATION & NUMBER OF DOMESTIC WELLS ARE APPROXIMATE.

N

0' 50' 100'

SCALE IN FEET

MACTEC

3630 E. WIER AVE.; PHOENIX, ARIZONA 85040

DECEMBER 7, 2005
GROUNDWATER ELEVATIONS

SITE LOCATION:	ADEQ TYSON WASH WQARF SITE QUARTZSITE, ARIZONA			
DRAWN	PROJECT NO.	APPROVED	DATE	FIGURE
M. FREEMAN	4974-04-2100.5.1	JNC	2/8/06	3